Final
Phase III RFI/RI

Rocky Flats Plant
881 Hillside Area

(Operable Unit No. 1)

June 1994

ADMIN RECORD

A-0U01-000654

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TABLE G-1
Summary of Validation Information
OU1 Primary Sample, Field Duplicate, and Field Quality Control Data

		Total Results	No. Results Validated	No. Results Rejected	% Results Validated	% Validated Results Rejected
GEOLOGIC/BOREHOLE MATERIALS						
	MISCELLANEOUS PARAMETERS	351	108	0	31	0
	PESTICIDE/PCB COMPOUNDS	2538	1234	0	49	0
	SEMIVOLATILE ORGANICS	18539	14610	171	79	1
	TOTAL METALS	7975	6761	52	85	1
	TOTAL RADIOCHEMISTRY	3294	2033	471	62	23
	VOLATILE ORGANICS	18999	14156	789	75	6
	TOTAL	51696	38902	1483	75	4
GROUNDWATER						
	FILTERED METALS	4703	2461	25	52	1
	FILTERED RADIOCHEMISTRY	1102	731	63	66	9
	PESTICIDE/PCB COMPOUNDS	405	378	0	93	0
	SEMIVOLATILE ORGANICS	1687	1427	30	85	2
	TOTAL METALS	2586	2409	20	93	1
	TOTAL RADIOCHEMISTRY	793	630	67	79	11
	VOLATILE ORGANICS	9410	3779	201	40	5
	WATER QUALITY PARAMETERS	1218	692	11	57	2
	TOTAL	21904	12507	417	57	3
SEDIMENTS						
	MISCELLANEOUS PARAMETERS	37	30	0	81	0
	PESTICIDE/PCB COMPOUNDS	270	243	0	90	0
	SEMIVOLATILE ORGANICS	975	910	8	93	1
	TOTAL METALS	405	376	3	93	1
	TOTAL RADIOCHEMISTRY	164	134	30	82	22
	VOLATILE ORGANICS	510	442	63	87	14
	TOTAL	2361	2135	104	90	5
SEEP/SPRING WATER						
	FILTERED METALS	1135	459	25	40	5
	FILTERED RADIOCHEMISTRY	158	116	12	73	10
	PESTICIDE/PCB COMPOUNDS	27	27	0	100	0
	SEMIVOLATILE ORGANICS	260	260	5	100	2
	TOTAL METALS	1109	454	16	41	4
	TOTAL RADIOCHEMISTRY	274	195	25	71	13
	VOLATILE ORGANICS	1372	646	80	47	12
	WATER QUALITY PARAMETERS	268	86	6	32	7
	TOTAL	4603	2243	169	49	8
SURFACE SOILS						
	MISCELLANEOUS PARAMETERS	101	96	0	95	0
	PESTICIDE/PCB COMPOUNDS	891	891	0	100	0
	SEMIVOLATILE ORGANICS	2043	2024	1	99	0
	TOTAL METALS	1160	1124	9	97	1
	TOTAL RADIOCHEMSITRY	346	148	60	43	41
	VOLATILE ORGANICS	0	0	0		
	TOTAL	4541	4283	70	94	2
SURFACE WATER						
	FILTERED METALS	7597	3948	123	52	3
	FILTERED RADIOCHEMISTRY	1229	915	164	74	18
	PESTICIDE/PCB COMPOUNDS	675	432	0	64	0
	SEMIVOLATILE ORGANICS	2870	1297	18	45	1
	TOTAL METALS	7728	4167	127	54	3
	TOTAL RADIOCHEMISTRY	1859	1303	280	70	21
	VOLATILE ORGANICS	8362	4036	110	48	3
	WATER QUALITY PARAMETERS	2077	525	0	25	0
	TOTAL	32397	16623	822	51	5
	GRAND TOTAL	117502	76693	3065	65	4

Table G-2
Listing of Rejected Data with Reason Code
Operable Unit No. 1 Primary Sample, Field Duplicate, and QC Sample Data

Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
Geologic/Borehole Materials Semivolatile Organics	40	88	ORGANICS INITIAL CALIBRATION CRITERIA WERE NOT MET
	41	106	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	85	22	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	99	5	SEE HARDCOPY FOR FURTHER EXPLANATION
Geologic/Borehole Materials Total Metals	13	4	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	8	25	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	9	16	INTERFERENCE INDICATED IN THE ICP INTERFERENCE CHECK SAMPLE
	56	21	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	3	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	1	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	52	1	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
Geologic/Borehole Materials Total Radiochemistry	10	113	LAB CONTROL SAMPLE RECOVERY CRITERIA WERE NOT MET
	27	82	RECOVERY CRITERIA WERE NOT MET
	31	6	REPLICATE ANALYSIS WAS NOT PERFORMED
	32	114	LAB CONTROL SAMPLES >+/-3 SIGMA
	4	195	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	51	21	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	52	17	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	64	39	NON-TRACEABLE/NON-CERTIFIED STANDARD WAS USED
	75	80	BLANK DATA NOT SUBMITTED
	21	2	REAGENT BLANKS EXCEEDED MDA
	59	19	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	61	6	REPLICATE RECOVERY CRITERIA WERE NOT MET
	62	123	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	74	162	LCS DATA NOT SUBMITTED
	78	288	MDAS WERE CALCULATED BY REVIEWER
	99	61	SEE HARDCOPY FOR FURTHER EXPLANATION
	30	9	REPLICATE PRECISION CRITERIA WERE NOT MET
	36	4	MDA EXCEEDED THE RDL
	77	16	DETECTOR EFFICIENCY CRITERIA NOT MET
	79	10	RESULT OBTAINED THROUGH DILUTION
	84	21	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	121	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Geologic/Borehole Materials Volatile Organics	40	127	ORGANICS INITIAL CALIBRATION CRITERIA WERE NOT MET
	41	573	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	52	46	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
Groundwater Filtered Metals	5	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	6	2	INCORRECT CALIBRATION OF INSTRUMENT
	8	14	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	9	7	INTERFERENCE INDICATED IN THE ICP INTERFERENCE CHECK SAMPLE
Groundwater Filtered Radiochemistry	18	24	DOCUMENTATION WAS NOT PROVIDED
	2	4	HOLDING TIMES WERE GROSSLY EXCEEDED
	27	8	RECOVERY CRITERIA WERE NOT MET

Note: The number of reasons cited for a rejected record may range from zero to four (there are four reason-code fields in each RFED's record).
This table indicates how many times a particular reason code was cited for all records in each media-analyte group.

Table G-2
Listing of Rejected Data with Reason Code
Operable Unit No. 1 Primary Sample, Field Duplicate, and QC Sample Data

Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
	32	32	LAB CONTROL SAMPLES >+/-3 SIGMA
	4	30	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	51	6	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	59	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	10	6	LAB CONTROL SAMPLE RECOVERY CRITERIA WERE NOT MET
	36	20	MDA EXCEEDED THE RDL
	60	9	BLANK RECOVERY CRITERIA WERE NOT MET
	61	15	REPLICATE RECOVERY CRITERIA WERE NOT MET
	78	40	MDAS WERE CALCULATED BY REVIEWER
	99	6	SEE HARDCOPY FOR FURTHER EXPLANATION
	62	1	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	52	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
Groundwater Semivolatile Organics	41	14	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	42	16	SURROGATES WERE OUTSIDE CRITERIA
Groundwater Total Metals	13	2	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	8	15	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	9	3	INTERFERENCE INDICATED IN THE ICP INTERFERENCE CHECK SAMPLE
Groundwater Total Radiochemistry	10	1	LAB CONTROL SAMPLE RECOVERY CRITERIA WERE NOT MET
	18	7	DOCUMENTATION WAS NOT PROVIDED
	2	17	HOLDING TIMES WERE GROSSLY EXCEEDED
	27	8	RECOVERY CRITERIA WERE NOT MET
	32	21	LAB CONTROL SAMPLES >+/-3 SIGMA
	4	15	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	51	17	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	68	16	FREQUENCY OF QUALITY CONTROL SAMPLES NOT MET
	99	28	SEE HARDCOPY FOR FURTHER EXPLANATION
	1	21	HOLDING TIMES WERE EXCEEDED
	21	9	REAGENT BLANKS EXCEEDED MDA
	30	8	REPLICATE PRECISION CRITERIA WERE NOT MET
	31	12	REPLICATE ANALYSIS WAS NOT PERFORMED
	36	6	MDA EXCEEDED THE RDL
	59	3	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	62	14	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	70	1	RESOLUTION CRITERIA NOT MET
	78	20	MDAS WERE CALCULATED BY REVIEWER
	52	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	64	3	NON-TRACEABLE/NON-CERTIFIED STANDARD WAS USED
	53	1	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	54	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	85	1	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Groundwater Volatile Organics	2	93	HOLDING TIMES WERE GROSSLY EXCEEDED
	40	40	ORGANICS INITIAL CALIBRATION CRITERIA WERE NOT MET
	41	87	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET

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Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
Groundwater Water Quality Parameters	12	3	PREDIGESTION MATRIX SPK CRIT WERE NOT MET (+/- 25%)
	4	7	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
Sediment Semivolatile Organics	41	8	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	85	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Sediment Total Metals	13	3	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
Sediment Total Radiochemistry	18	14	DOCUMENTATION WAS NOT PROVIDED
	2	3	HOLDING TIMES WERE GROSSLY EXCEEDED
	4	12	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	51	7	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	6	4	INCORRECT CALIBRATION OF INSTRUMENT
	62	1	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	74	13	LCS DATA NOT SUBMITTED
	19	1	CALIBRATION VERIFICATION CRIT NOT MET
	32	6	LAB CONTROL SAMPLES >+/-3 SIGMA
	70	1	RESOLUTION CRITERIA NOT MET
	27	4	RECOVERY CRITERIA WERE NOT MET
	63	2	LCS EXPECTED VALUE NOT SUBMITTED/VERIFIABLE
	73	1	IPA NOT PERFORMED
	75	3	BLANK DATA NOT SUBMITTED
	99	2	SEE HARDCOPY FOR FURTHER EXPLANATION
	52	1	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	78	8	MDAS WERE CALCULATED BY REVIEWER
	84	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	3	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	31	1	REPLICATE ANALYSIS WAS NOT PERFORMED
	21	1	REAGENT BLANKS EXCEEDED MDA
	61	3	REPLICATE RECOVERY CRITERIA WERE NOT MET
Sediment Volatile Organics	57	60	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	99	1	SEE HARDCOPY FOR FURTHER EXPLANATION
	41	2	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
Seep/Spring Water Filtered Metals	13	9	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	6	2	INCORRECT CALIBRATION OF INSTRUMENT
	8	5	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	52	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	1	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Seep/Spring Water Filtered Radiochemistry	18	6	DOCUMENTATION WAS NOT PROVIDED
	2	2	HOLDING TIMES WERE GROSSLY EXCEEDED
	27	1	RECOVERY CRITERIA WERE NOT MET
	31	5	REPLICATE ANALYSIS WAS NOT PERFORMED
	32	9	LAB CONTROL SAMPLES >+/-3 SIGMA
	30	3	REPLICATE PRECISION CRITERIA WERE NOT MET
	6	2	INCORRECT CALIBRATION OF INSTRUMENT

Note: The number of reasons cited for a rejected record may range from zero to four (there are four reason-code fields in each RFED's record).
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Operable Unit No. 1 Primary Sample, Field Duplicate, and QC Sample Data

Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
	54	3	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	74	1	LCS DATA NOT SUBMITTED
	76	2	INSTRUMENT GAIN AND/OR EFFICIENCY NOT SUBMITTED
	78	3	MDAS WERE CALCULATED BY REVIEWER
	99	1	SEE HARDCOPY FOR FURTHER EXPLANATION
	36	1	MDA EXCEEDED THE RDL
Seep/Spring Water Semivolatile Organics	41	5	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
Seep/Spring Water Total Metals	13	6	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	6	2	INCORRECT CALIBRATION OF INSTRUMENT
	8	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	52	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	5	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Seep/Spring Water Total Radiochemistry	1	3	HOLDING TIMES WERE EXCEEDED
	18	8	DOCUMENTATION WAS NOT PROVIDED
	2	12	HOLDING TIMES WERE GROSSLY EXCEEDED
	32	11	LAB CONTROL SAMPLES >+/-3 SIGMA
	64	6	NON-TRACEABLE/NON-CERTIFIED STANDARD WAS USED
	99	5	SEE HARDCOPY FOR FURTHER EXPLANATION
	21	2	REAGENT BLANKS EXCEEDED MDA
	4	1	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	51	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	52	3	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	30	3	REPLICATE PRECISION CRITERIA WERE NOT MET
	59	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	62	8	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	82	1	SAMPLE RESULTS WERE NOT CORRECTED FOR DECAY
	36	1	MDA EXCEEDED THE RDL
	53	1	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	78	1	MDAS WERE CALCULATED BY REVIEWER
	84	3	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Seep/Spring Water Volatile Organics	41	6	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	40	1	ORGANICS INITIAL CALIBRATION CRITERIA WERE NOT MET
Seep/Spring Water Water Quality Parameters	4	6	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
Surface Soil Filtered Radiochemistry	18	2	DOCUMENTATION WAS NOT PROVIDED
	31	2	REPLICATE ANALYSIS WAS NOT PERFORMED
	75	2	BLANK DATA NOT SUBMITTED
Surface Soil Semivolatile Organics	99	1	SEE HARDCOPY FOR FURTHER EXPLANATION
Surface Soil Total Metals	8	1	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	9	8	INTERFERENCE INDICATED IN THE ICP INTERFERENCE CHECK SAMPLE
Surface Soil Total Radiochemistry	18	16	DOCUMENTATION WAS NOT PROVIDED
	4	30	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	74	32	LCS DATA NOT SUBMITTED

Note: The number of reasons cited for a rejected record may range from zero to four (there are four reason-code fields in each RFED's record).
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Table G-2
Listing of Rejected Data with Reason Code
Operable Unit No. 1 Primary Sample, Field Duplicate, and QC Sample Data

Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
	30	23	REPLICATE PRECISION CRITERIA WERE NOT MET
	32	16	LAB CONTROL SAMPLES >+/-3 SIGMA
	68	9	FREQUENCY OF QUALITY CONTROL SAMPLES NOT MET
	59	9	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	78	60	MDAS WERE CALCULATED BY REVIEWER
	27	3	RECOVERY CRITERIA WERE NOT MET
	70	3	RESOLUTION CRITERIA NOT MET
Surface Water Filtered Metals	13	25	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	14	1	POSTDIGESTION MATRIX SPK RECOV CRIT WERE NOT MET
	5	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	6	16	INCORRECT CALIBRATION OF INSTRUMENT
	8	29	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	52	5	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	4	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	99	8	SEE HARDCOPY FOR FURTHER EXPLANATION
Surface Water Filtered Radiochemistry	1	39	HOLDING TIMES WERE EXCEEDED
	18	34	DOCUMENTATION WAS NOT PROVIDED
	2	11	HOLDING TIMES WERE GROSSLY EXCEEDED
	27	17	RECOVERY CRITERIA WERE NOT MET
	30	21	REPLICATE PRECISION CRITERIA WERE NOT MET
	31	25	REPLICATE ANALYSIS WAS NOT PERFORMED
	32	107	LAB CONTROL SAMPLES >+/-3 SIGMA
	99	55	SEE HARDCOPY FOR FURTHER EXPLANATION
	19	33	CALIBRATION VERIFICATION CRIT NOT MET
	36	11	MDA EXCEEDED THE RDL
	4	1	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	52	3	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	6	14	INCORRECT CALIBRATION OF INSTRUMENT
	70	9	RESOLUTION CRITERIA NOT MET
	76	10	INSTRUMENT GAIN AND/OR EFFICIENCY NOT SUBMITTED
	78	46	MDAS WERE CALCULATED BY REVIEWER
	54	17	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	59	2	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	60	9	BLANK RECOVERY CRITERIA WERE NOT MET
	74	13	LCS DATA NOT SUBMITTED
	85	64	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Surface Water Semivolatile Organics	41	12	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	99	6	SEE HARDCOPY FOR FURTHER EXPLANATION
	52	4	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
Surface Water Total Metals	13	25	PRE-DIGESTION MATRIX SPIKE CRITERIA WERE NOT MET (< 30 PERCENT)
	5	12	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	6	16	INCORRECT CALIBRATION OF INSTRUMENT

Note: The number of reasons cited for a rejected record may range from zero to four (there are four reason-code fields in each RFED's record).
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Table G-2
Listing of Rejected Data with Reason Code
Operable Unit No. 1 Primary Sample, Field Duplicate, and QC Sample Data

Media - Analyte Group	Quantalex Validation Reason Code	Number of Times Code Referenced	Quantalex Validation Report Reason
	8	21	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	52	17	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	8	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	2	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	99	8	SEE HARDCOPY FOR FURTHER EXPLANATION
Surface Water Total Radiochemistry	1	6	HOLDING TIMES WERE EXCEEDED
	18	12	DOCUMENTATION WAS NOT PROVIDED
	2	78	HOLDING TIMES WERE GROSSLY EXCEEDED
	21	30	REAGENT BLANKS EXCEEDED MDA
	27	4	RECOVERY CRITERIA WERE NOT MET
	29	1	VERIFICATION CRITERIA WERE NOT MET
	30	22	REPLICATE PRECISION CRITERIA WERE NOT MET
	32	69	LAB CONTROL SAMPLES >+/-3 SIGMA
	36	18	MDA EXCEEDED THE RDL
	4	18	CALIBRATION VERIFICATION CRITERIA WERE NOT MET
	6	1	INCORRECT CALIBRATION OF INSTRUMENT
	61	7	REPLICATE RECOVERY CRITERIA WERE NOT MET
	64	15	NON-TRACEABLE/NON-CERTIFIED STANDARD WAS USED
	68	3	FREQUENCY OF QUALITY CONTROL SAMPLES NOT MET
	78	17	MDAS WERE CALCULATED BY REVIEWER
	99	69	SEE HARDCOPY FOR FURTHER EXPLANATION
	51	10	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	52	34	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	59	9	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	62	28	LCS RELATIVE PERCENT ERROR CRITERIA NOT MET
	82	2	SAMPLE RESULTS WERE NOT CORRECTED FOR DECAY
	10	6	LAB CONTROL SAMPLE RECOVERY CRITERIA WERE NOT MET
	53	5	CRDL CHECK SAMPLE RECOVERY CRITERIA WERE NOT MET
	84	25	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
	85	1	NEGATIVE BIAS WAS INDICATED IN THE BLANKS
Surface Water Volatile Organics	40	9	ORGANICS INITIAL CALIBRATION CRITERIA WERE NOT MET
	41	38	ORGANICS CONTINUING CALIBRATION CRITERIA WERE NOT MET
	6	7	INCORRECT CALIBRATION OF INSTRUMENT
	99	1	SEE HARDCOPY FOR FURTHER EXPLANATION
	45	2	RESULTS WERE NOT CONFIRMED
	85	5	NEGATIVE BIAS WAS INDICATED IN THE BLANKS

Note: The number of reasons cited for a rejected record may range from zero to four (there are four reason-code fields in each RFED's record).
This table indicates how many times a particular reason code was cited for all records in each media-analyte group.

Table G3-a

Compounds Detected in Volatile Organic QC Blanks

MEDIA	FIELD TYPE*	COMPOUND	DETECTIONS/OBSERVATIONS
SEP	RNS	1,1,1-trichloroethane	1/2
SEP	RNS	1,2-dichloroethane	1/2
BH	RNS	acetone	1/1
BH	TB	acetone	59/81
GW	FB	acetone	1/1
GW	RNS	acetone	3/5
GW	TB	acetone	1/1
SEP	RNS	acetone	2/2
SW	RNS	acetone	6/16
SW	TB	acetone	2/3
GW	RNS	chloromethane	1/7
SW	RNS	chloromethane	1/16
BH	RNS	methylene chloride	1/1
BH	TB	methylene chloride	36/86
GW	FB	methylene chloride	1/1
GW	RNS	methylene chloride	4/7
GW	TB	methylene chloride	1/1
SD	RNS	methylene chloride	1/1
SEP	RNS	methylene chloride	2/2
SW	RNS	methylene chloride	8/16
SW	TB	methylene chloride	3/3
GW	RNS	sec-butylbenzene	1/2
GW	RNS	tetrachloroethene	1/6
BH	TB	toluene	7/88
GW	RNS	toluene	2/6
BH	TB	total xylenes	2/90
GW	RNS	total xylenes	1/5
GW	RNS	trichloroethene	1/6

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SEPSW046	08/08/91	SW80146WC	1,2-DICHLOROETHANE	1	J	UG/L	A	5	RNS
BH 31491	08/26/91	MW00156EBU1	TOLUENE	2	J	UG/L	A	5	TB
BH 32491	09/04/91	BH00235EBU1	TOLUENE	1	J	UG/L	A	5	TB
BH 33091	09/06/91	MW00185EBU1	TOLUENE	2	J	UG/L	A	5	TB
BH 36991	10/11/91	BH00613EBU1	TOLUENE	1	J	UG/L	A	5	TB
BH 37591	10/17/91	BH00662EBU1	TOLUENE	7		UG/L		5	TB
BH 37591	10/17/91	MW00662EBU1	TOLUENE	7		UG/L	V	5	TB
BH 39291	11/15/91	BH00847EBU1	TOLUENE	1	J	UG/L	A	5	TB
GW 6886	02/26/92	GW02382IT	TOLUENE	19		UG/L		5	RNS
GW 6886	05/15/92	GW02826IT	TOLUENE	11		UG/L		5	RNS
GW 6886	02/26/92	GW02381ITMS	1,2,4-TRICHLOROBENZENE	0.08	J	UG/L		10	MS
GW 6886	02/26/92	GW02382IT	TETRACHLOROETHENE	3.10		UG/L		5	RNS
BH 39191	11/14/91	BH00758EBU1	TOTAL XYLENES	4	BJ	UG/L	JA	5	TB
BH 39291	11/15/91	BH00847EBU1	TOTAL XYLENES	2	J	UG/L	A	5	TB
GW 6986	03/06/91	GW00926IT	TOTAL XYLENES	1	BJ	UG/L	JA	5	RNS
GW 6886	05/15/92	GW02826IT	sec-BUTYLBENZENE	0.80	B	UG/L			RNS
BH 39191	11/20/91	BH00768EBU1	ACETONE	13	B	UG/L	JA	10	RNS
BH 30091	08/05/91	BH00001EBU1TB	ACETONE	22	B	UG/L	JA	10	TB
BH 30291	08/08/91	BH00008EBU1T	ACETONE	16	B	UG/L	JA	10	TB
BH 31491	08/26/91	MW00156EBU1	ACETONE	4	BJ	UG/L	JA	10	TB
BH 31691	08/26/91	BH00116EBU1	ACETONE	6	BJ	UG/L	JA	10	TB
BH 31791	08/27/91	MW00164EBU1	ACETONE	6	BJ	UG/L	JA	10	TB
BH 31891	08/27/91	BH00120EBU1	ACETONE	5	BJ	UG/L	JA	10	TB
BH 32291	09/03/91	MW00169EBU1	ACETONE	29		UG/L	JA	10	TB
BH 32391	09/03/91	BH00225EBU1	ACETONE	22		UG/L	JA	10	TB
BH 32491	09/04/91	BH00235EBU1	ACETONE	21		UG/L	JA	10	TB
BH 32591	09/04/91	MW00170EBU1	ACETONE	24		UG/L	JA	10	TB
BH 32791	09/05/91	MW00180EBU1	ACETONE	28		UG/L	JA	10	TB
BH 32991	09/06/91	BH00260EBU1	ACETONE	23		UG/L	JA	10	TB
BH 33091	09/06/91	MW00185EBU1	ACETONE	17		UG/L	JA	10	TB
BH 33291	09/10/91	BH00280EBU1	ACETONE	15		UG/L	JA	10	TB
BH 33391	09/09/91	MW00190EBU1	ACETONE	15		UG/L	JA	10	TB

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
BH 33491	09/10/91	MW00300EBU1	ACETONE	3	J	UG/L	A	10	TB
BH 33591	09/11/91	BH00290EBU1	ACETONE	6	BJ	UG/L	JA	10	TB
BH 33691	09/11/91	MW00305EBU1	ACETONE	8	J	UG/L	A	10	TB
BH 33791	09/12/91	BH00350EBU1	ACETONE	9	BJ	UG/L	JA	10	TB
BH 33991	09/13/91	BH00361EBU1	ACETONE	5	J	UG/L	A	10	TB
BH 34091	09/16/91	BH00368EBU1	ACETONE	9	J	UG/L	A	10	TB
BH 34191	09/16/91	MW00314EBU1	ACETONE	9	J	UG/L	A	10	TB
BH 34291	09/16/91	BH00375EBU1	ACETONE	7	J	UG/L	A	10	TB
BH 34391	09/17/91	MW00318EBU1	ACETONE	9	J	UG/L	A	10	TB
BH 34891	09/19/91	BH00400EBU1	ACETONE	12	B	UG/L	JA	10	TB
BH 34991	09/20/91	BH00410EBU1	ACETONE	14		UG/L	JA	10	TB
BH 35091	09/23/91	MW00331EBU1	ACETONE	14	B	UG/L	V	10	TB
BH 35191	09/23/91	BH00336EBU1	ACETONE	6	BJ	UG/L	JA	10	TB
BH 35291	09/24/91	BH00419EBU1	ACETONE	2	BJ	UG/L	JA	10	TB
BH 35591	09/26/91	BH00433EBU1	ACETONE	10	B	UG/L	JA	10	TB
BH 35691	09/26/91	MW00500EBU1	ACETONE	33	B	UG/L	JA	10	TB
BH 35791	09/27/91	BH00438EBU1	ACETONE	11	B	UG/L	JA	10	TB
BH 35891	10/01/91	BH00447EBU1	ACETONE	16		UG/L	JA	10	TB
BH 35991	10/01/91	MW00509EBU1	ACETONE	5	J	UG/L	A	10	TB
BH 36191	10/02/91	MW00514EBU1	ACETONE	6	BJ	UG/L	JA	10	TB
BH 36291	10/03/91	BH00465EBU1	ACETONE	6	J	UG/L	A	10	TB
BH 36691	10/10/91	BH00538EBU1	ACETONE	8	BJ	UG/L	JA	10	TB
BH 36791	10/09/91	BH00494EBU1	ACETONE	15	B	UG/L	JA	10	TB
BH 37191	10/14/91	BH00555EBU1	ACETONE	15		UG/L	JA	10	TB
BH 37291	10/15/91	BH00628EBU1	ACETONE	6	J	UG/L	A	10	TB
BH 37391	10/16/91	BH00645EBU1	ACETONE	4	J	UG/L	A	10	TB
BH 37591	10/17/91	BH00662EBU1	ACETONE	5	J	UG/L		10	TB
BH 37591	10/17/91	MW00662EBU1	ACETONE	5	J	UG/L	A	10	TB
BH 37591	10/18/91	BH00668EBU1	ACETONE	6	J	UG/L		10	TB
BH 37591	10/18/91	MW00668EBU1	ACETONE	6	J	UG/L	A	10	TB
BH 37691	10/17/91	MW00584EBU1	ACETONE	6	J	UG/L	A	10	TB
BH 37891	10/21/91	MW00710EBU1	ACETONE	20		UG/L	JA	10	TB

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
BH 37991	10/23/91	BH00718EBU1	ACETONE	22		UG/L	JA	10	TB
BH 38091	10/25/91	BH00683EBU1	ACETONE	20		UG/L	JA	10	TB
BH 38191	10/28/91	BH00688EBU1	ACETONE	15		UG/L		10	TB
BH 38291	10/31/91	BH00694EBU1	ACETONE	10		UG/L		10	TB
BH 38391	11/04/91	BH00800EBU1	ACETONE	12		UG/L	V	10	TB
BH 38591	11/05/91	BH00807EBU1	ACETONE	12		UG/L	JA	10	TB
BH 38691	11/07/91	BH00816EBU1	ACETONE	25	B	UG/L	JA	10	TB
BH 38891	11/08/91	BH00824EBU1	ACETONE	6	BJ	UG/L		10	TB
BH 38991	11/11/91	BH00830EBU1	ACETONE	13		UG/L	JA	10	TB
BH 39191	11/14/91	BH00758EBU1	ACETONE	4	J	UG/L	A	10	TB
BH 39491	12/14/91	BH01030EBU1	ACETONE	33	B	UG/L	JA	10	TB
BH 39691	11/25/91	BH00862EBU1	ACETONE	12	B	UG/L	JA	10	TB
GW 6886	08/01/90	GW00186IT	ACETONE	8	J	UG/L		10	FB
GW 6886	08/01/90	GW00188IT	ACETONE	6	J	UG/L		10	MS
GW 6886	08/01/90	GW00189IT	ACETONE	10	B	UG/L		10	MSD
GW 6886	08/01/90	GW00185IT	ACETONE	6	J	UG/L		10	RNS
GW 6986	03/06/91	GW00926IT	ACETONE	3	BJ	UG/L	JA	10	RNS
GW 6986	08/20/91	GW01694IT	ACETONE	5	BJ	UG/L	JA	10	RNS
GW 0687	07/19/90	GW00067IT	ACETONE	7	BJ	UG/L		10	TB
SEPSW045	06/13/90	SW00068WC	ACETONE	3	JB	UG/L		10	RNS
SEPSW046	08/08/91	SW80146WC	ACETONE	11		UG/L	JA	10	RNS
SW SW034	07/16/90	SW80005WC	ACETONE	4	JB	UG/L		10	MS
SW SW035	07/19/90	SW80017WC	ACETONE	6	BJ	UG/L		10	MS
SW SW029	09/12/90	SW80041WC	ACETONE	6	BJ	UG/L		10	RNS
SW SW029	04/02/92	SW80189WC	ACETONE	7	J	UG/L	A	10	RNS
SW SW035	07/19/90	SW80015WC	ACETONE	3	BJ	UG/L		10	RNS
SW SW035	10/03/90	SW80050WC	ACETONE	7	BJ	UG/L		10	RNS
SW SW038	12/11/90	SW80080WC	ACETONE	8	BJ	UG/L	JA	10	RNS
SW SW068	06/13/90	SW00018WC	ACETONE	5	JB	UG/L		10	RNS
SW SW066	06/12/90	SW00013WC	ACETONE	1	JB	UG/L		10	TB
SW SW068	06/13/90	SW00016WC	ACETONE	3	JB	UG/L		10	TB
SEPSW046	08/08/91	SW80146WC	1,1,1-TRICHLOROETHANE	7		UG/L	JA	5	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6986	03/06/91	GW009261T	CHLOROMETHANE	7	J	UG/L	A	10	RNS
SW SW068	12/10/90	SW80078WC	CHLOROMETHANE	2	J	UG/L		10	RNS
BH 39191	11/20/91	BH00768EBU1	METHYLENE CHLORIDE	6	B	UG/L	JA	5	RNS
BH 31791	08/27/91	MW00164EBU1	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	TB
BH 32291	09/03/91	MW00169EBU1	METHYLENE CHLORIDE	3	J	UG/L	A	5	TB
BH 32391	09/03/91	BH00225EBU1	METHYLENE CHLORIDE	3	J	UG/L	A	5	TB
BH 32491	09/04/91	BH00235EBU1	METHYLENE CHLORIDE	2	J	UG/L	A	5	TB
BH 32591	09/04/91	MW00170EBU1	METHYLENE CHLORIDE	2	J	UG/L	A	5	TB
BH 32791	09/05/91	MW00180EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 32991	09/06/91	BH00260EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 33291	09/10/91	BH00280EBU1	METHYLENE CHLORIDE	7	B	UG/L	JA	5	TB
BH 33791	09/12/91	BH00350EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 34091	09/16/91	BH00368EBU1	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	TB
BH 34291	09/16/91	BH00375EBU1	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	TB
BH 34991	09/20/91	BH00410EBU1	METHYLENE CHLORIDE	1	J	UG/L	A	5	TB
BH 35091	09/23/91	MW00331EBU1	METHYLENE CHLORIDE	3	BJ	UG/L	JA	5	TB
BH 35291	09/24/91	BH00419EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 35391	09/24/91	BH00341EBU1	METHYLENE CHLORIDE	3	J	UG/L	A	5	TB
BH 35491	09/24/91	BH00426EBU1	METHYLENE CHLORIDE	3	J	UG/L	A	5	TB
BH 35691	09/26/91	MW00500EBU1	METHYLENE CHLORIDE	5	B	UG/L	JA	5	TB
BH 37191	10/15/91	BH00565EBU1	METHYLENE CHLORIDE	4	J	UG/L	A	5	TB
BH 37291	10/15/91	BH00628EBU1	METHYLENE CHLORIDE	3	J	UG/L	A	5	TB
BH 37391	10/16/91	BH00645EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 37791	10/23/91	BH00676EBU1	METHYLENE CHLORIDE	11	B	UG/L	JA	5	TB
BH 37891	10/21/91	MW00710EBU1	METHYLENE CHLORIDE	3	BJ	UG/L	JA	5	TB
BH 37991	10/23/91	BH00718EBU1	METHYLENE CHLORIDE	3	BJ	UG/L	JA	5	TB
BH 38191	10/28/91	BH00688EBU1	METHYLENE CHLORIDE	2	J	UG/L		5	TB
BH 38291	10/31/91	BH00694EBU1	METHYLENE CHLORIDE	1	BJ	UG/L		5	TB
BH 38591	11/05/91	BH00807EBU1	METHYLENE CHLORIDE	1	J	UG/L	A	5	TB
BH 38691	11/07/91	BH00816EBU1	METHYLENE CHLORIDE	1	BJ	UG/L	JA	5	TB
BH 38991	11/12/91	BH00837EBU1	METHYLENE CHLORIDE	1	J	UG/L	A	5	TB
BH 38991	11/22/91	BH00782EBU1	METHYLENE CHLORIDE	9	B	UG/L	JA	5	TB

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
BH 39191	11/14/91	BH00758EBU1	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	TB
BH 39291	11/15/91	BH00847EBU1	METHYLENE CHLORIDE	4	BJ	UG/L	JA	5	TB
BH 39291	11/26/91	BH00795EBU1	METHYLENE CHLORIDE	12	B	UG/L	JA	5	TB
BH 39491	11/19/91	BH00853EBU1	METHYLENE CHLORIDE	2	J	UG/L	A	5	TB
BH 39491	12/14/91	BH01030EBU1	METHYLENE CHLORIDE	5	B	UG/L	JA	5	TB
BH 39691	11/25/91	BH00862EBU1	METHYLENE CHLORIDE	9	B	UG/L	JA	5	TB
BH 39791	11/26/91	BH00872EBU1	METHYLENE CHLORIDE	10	B	UG/L	JA	5	TB
GW 6886	08/01/90	GW00186IT	METHYLENE CHLORIDE	1	BJ	UG/L		5	FB
GW 6886	08/01/90	GW00188IT	METHYLENE CHLORIDE	2	BJ	UG/L		5	MS
GW 6886	08/01/90	GW00189IT	METHYLENE CHLORIDE	4	BJ	UG/L		5	MSD
GW 6886	08/01/90	GW00185IT	METHYLENE CHLORIDE	2	BJ	UG/L		5	RNS
GW 6886	05/14/91	GW01287IT	METHYLENE CHLORIDE	6	B	UG/L	JA	5	RNS
GW 6986	03/06/91	GW00926IT	METHYLENE CHLORIDE	5	B	UG/L	JA	5	RNS
GW 6986	08/20/91	GW01694IT	METHYLENE CHLORIDE	5		UG/L	V	5	RNS
GW 0687	07/19/90	GW00067IT	METHYLENE CHLORIDE	1	BJ	UG/L		5	TB
SD SED028	03/18/91	SS80092WC	METHYLENE CHLORIDE	6		UG/L	V	5	RNS
SEPSW045	06/13/90	SW00068WC	METHYLENE CHLORIDE	2	JB	UG/L		5	RNS
SEPSW046	08/08/91	SW80146WC	METHYLENE CHLORIDE	10		UG/L	JA	5	RNS
SW SW034	07/16/90	SW80005WC	METHYLENE CHLORIDE	2	JB	UG/L		5	MS
SW SW035	07/19/90	SW80017WC	METHYLENE CHLORIDE	5		UG/L		5	MS
SW SW034	07/16/90	SW80006WC	METHYLENE CHLORIDE	1	JB	UG/L		5	MSD
SW SW029	04/02/92	SW80189WC	METHYLENE CHLORIDE	8		UG/L	V	5	RNS
SW SW033	08/07/91	SW80144WC	METHYLENE CHLORIDE	36	B	UG/L	JA	5	RNS
SW SW034	11/07/90	SW80064WC	METHYLENE CHLORIDE	4	BJ	UG/L	JA	5	RNS
SW SW034	12/04/90	SW80072WC	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	RNS
SW SW035	07/19/90	SW80015WC	METHYLENE CHLORIDE	2	J	UG/L		5	RNS
SW SW035	10/03/90	SW80050WC	METHYLENE CHLORIDE	6	B	UG/L		5	RNS
SW SW038	12/11/90	SW80080WC	METHYLENE CHLORIDE	2	BJ	UG/L	JA	5	RNS
SW SW068	06/13/90	SW00018WC	METHYLENE CHLORIDE	2	JB	UG/L		5	RNS
SW SW029	09/12/90	SW90095WC	METHYLENE CHLORIDE	3	J	UG/L		5	TB
SW SW066	06/12/90	SW00013WC	METHYLENE CHLORIDE	1	JB	UG/L		5	TB
SW SW068	06/13/90	SW00016WC	METHYLENE CHLORIDE	2	JB	UG/L		5	TB

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G3-b

Volatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	02/26/92	GW02382IT	TRICHLOROETHENE	0.3		UG/L		5	RNS
GW 6886	02/26/92	GW02381ITMS	1,2,3-TRICHLOROBENZENE	0.11		UG/L			MS
GW 6886	02/26/92	GW02381ITMS	HEXACHLOROBUTADIENE	0.10		UG/L		10	MS
GW 6886	02/26/92	GW02381ITMS	NAPHTHALENE	47	B	UG/L		10	MS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G4-a

Compounds Detected in Semivolatile Organic QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
BH	RNS	bis(2-ethylhexyl)phthalate	5/54
SW	RNS	bis(2-ethylhexyl)phthalate	2/3
BH	RNS	diethyl phthalate	3/55

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G4-b

Semivolatile Organic QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
BH 32091	08/29/91	BH00201EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	9	J	UG/L	A	10	RNS
BH 32191	08/30/91	BH00215EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	6	J	UG/L	A	10	RNS
BH 32991	09/06/91	BH00261EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	5	J	UG/L	A	10	RNS
BH 34791	09/19/91	MW00328EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	7	J	UG/L	A	10	RNS
BH 35191	09/23/91	BH00337EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	17		UG/L	JA	10	RNS
SW SW034	04/04/91	SW80106WC	BIS(2-ETHYLHEXYL)PHTHALATE	1	J	UG/L		10	RNS
SW SW035	04/08/91	SW80108WC	BIS(2-ETHYLHEXYL)PHTHALATE	2	J	UG/L	A	10	RNS
BH 31091	08/20/91	BH00083EBU1	DIETHYL PHTHALATE	2	J	UG/L	A	10	RNS
BH 34791	09/19/91	MW00328EBU1	DIETHYL PHTHALATE	4	J	UG/L	A	10	RNS
BH 37791	10/23/91	BH00677EBU1	DIETHYL PHTHALATE	3	J	UG/L	A	10	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G5

Compounds Not Detected in Pesticide/PCB QC Blanks

MEDIA	FIELD TYPE*	COMPOUND	DETECTIONS/OBSERVATIONS
SS	RNS	4,4'-ddd	0/1
SW	RNS	4,4'-ddd	0/1
SS	RNS	4,4'-dde	0/1
SW	RNS	4,4'-dde	0/1
SS	RNS	4,4'-ddt	0/1
SW	RNS	4,4'-ddt	0/1
SS	RNS	aldrin	0/1
SW	RNS	aldrin	0/1
SS	RNS	alpha chlordane	0/1
SS	RNS	alpha-bhc	0/1
SW	RNS	alpha-bhc	0/1
SW	RNS	alpha-chlordane	0/1
SS	RNS	arochlor-1016	0/1
SS	RNS	arochlor-1221	0/1
SS	RNS	arochlor-1232	0/1
SS	RNS	arochlor-1242	0/1
SS	RNS	arochlor-1248	0/1
SS	RNS	arochlor-1254	0/1
SS	RNS	arochlor-1260	0/1
SW	RNS	aroclor-1016	0/1
SW	RNS	aroclor-1221	0/1
SW	RNS	aroclor-1232	0/1
SW	RNS	aroclor-1242	0/1
SW	RNS	aroclor-1248	0/1
SW	RNS	aroclor-1254	0/1
SW	RNS	aroclor-1260	0/1
SS	RNS	beta-bhc	0/1
SW	RNS	beta-bhc	0/1
SS	RNS	delta-bhc	0/1
SW	RNS	delta-bhc	0/1
SS	RNS	dieldrin	0/1
SW	RNS	dieldrin	0/1
SS	RNS	endosulfan i	0/1
SW	RNS	endosulfan i	0/1
SS	RNS	endosulfan ii	0/1
SW	RNS	endosulfan ii	0/1
SS	RNS	endosulfan sulfate	0/1
SW	RNS	endosulfan sulfate	0/1
SS	RNS	endrin	0/1
SW	RNS	endrin	0/1
SS	RNS	endrin ketone	0/1
SW	RNS	endrin ketone	0/1
SS	RNS	gamma chlordane	0/1
SS	RNS	gamma-bhc (lindane)	0/1
SW	RNS	gamma-bhc (lindane)	0/1
SW	RNS	gamma-chlordane	0/1
SS	RNS	heptachlor	0/1

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G5

Compounds Not Detected in Pesticide/PCB QC Blanks

MEDIA	FIELD TYPE*	COMPOUND	DETECTIONS/OBSERVATIONS
SW	RNS	heptachlor	0/1
SS	RNS	heptachlor epoxide	0/1
SW	RNS	heptachlor epoxide	0/1
SS	RNS	methoxychlor	0/1
SW	RNS	methoxychlor	0/1
SS	RNS	toxaphene	0/1
SW	RNS	toxaphene	0/1

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G6-a

Analytes Detected in Total Metal QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
GW	RNS	aluminum	2/5
SD	RNS	aluminum	1/1
SS	RNS	aluminum	2/2
SW	RNS	aluminum	4/15
GW	RNS	antimony	1/5
SW	RNS	antimony	1/16
GW	RNS	barium	3/5
SD	RNS	barium	1/1
SEP	RNS	barium	1/2
SS	RNS	barium	1/2
SW	RNS	barium	11/16
GW	RNS	cadmium	2/5
SW	RNS	cadmium	2/15
GW	RNS	calcium	5/5
SD	RNS	calcium	1/1
SEP	RNS	calcium	1/2
SS	RNS	calcium	2/2
SW	RNS	calcium	15/16
GW	RNS	cesium	1/5
GW	RNS	chromium	2/5
SS	RNS	chromium	1/2
GW	RNS	cobalt	1/5
SW	RNS	cobalt	2/16
GW	RNS	copper	1/5
SD	RNS	copper	1/1
SW	RNS	copper	4/16
GW	RNS	iron	4/5
SD	RNS	iron	1/1
SS	RNS	iron	2/2
SW	RNS	iron	11/15
SD	RNS	lead	1/1
SS	RNS	lead	1/2
SW	RNS	lead	4/16
SW	RNS	lithium	1/16
GW	RNS	magnesium	3/5
SD	RNS	magnesium	1/1
SEP	RNS	magnesium	1/2
SS	RNS	magnesium	2/2
SW	RNS	magnesium	7/16
GW	RNS	manganese	4/5
SD	RNS	manganese	1/1
SEP	RNS	manganese	1/2
SS	RNS	manganese	1/2
SW	RNS	manganese	13/16
GW	RNS	molybdenum	2/5
SW	RNS	molybdenum	1/16
SW	RNS	nickel	2/16

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G6-a

Analytes Detected in Total Metal QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
SW	RNS	phosphorus	2/3
GW	RNS	potassium	2/5
SW	RNS	potassium	4/16
GW	RNS	silicon	2/2
SD	RNS	silicon	1/1
SEP	RNS	silicon	1/1
SS	RNS	silicon	2/2
SW	RNS	silicon	9/9
SW	RNS	silver	2/16
GW	RNS	sodium	5/5
SD	RNS	sodium	1/1
SEP	RNS	sodium	1/2
SS	RNS	sodium	2/2
SW	RNS	sodium	14/15
GW	RNS	strontium	4/5
SD	RNS	strontium	1/1
SEP	RNS	strontium	1/2
SW	RNS	strontium	7/16
SW	RNS	vanadium	3/16
GW	RNS	zinc	5/5
SD	RNS	zinc	1/1
SEP	RNS	zinc	1/2
SS	RNS	zinc	2/2
SW	RNS	zinc	12/16

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	02/26/92	GW02382IT	ALUMINUM	10.60	BN	UG/L	JA	200	RNS
GW 6986	08/20/91	GW01694IT	ALUMINUM	9.10	B*	UG/L	JA	200	RNS
SD SED028	03/18/91	SS80092WC	ALUMINUM	21.0		UG/L	V	200	RNS
SS RA011	02/27/92	SS03023WS	ALUMINUM	40.9	B	UG/L	JA	200	RNS
SS RA031	03/03/92	SS03052WS	ALUMINUM	71.9	B	UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	ALUMINUM	316.00	E	UG/L		200	MS
SW SW034	11/07/90	SW80064WC	ALUMINUM	36.7		UG/L	JA	200	RNS
SW SW034	12/04/90	SW80072WC	ALUMINUM	1070		UG/L	JA	200	RNS
SW SW035	07/19/90	SW80015WC	ALUMINUM	23.20	BE	UG/L		200	RNS
SW SW069	08/20/90	SW80034WC	ALUMINUM	7.60	B	UG/L		200	RNS
GW 6886	11/25/91	GW02059IT	IRON	80.90	B*	UG/L	JA	100	RNS
GW 6886	02/26/92	GW02382IT	IRON	23.90	B	UG/L	JA	100	RNS
GW 6886	05/15/92	GW02826IT	IRON	13.20	B	UG/L	JA	100	RNS
GW 6986	08/20/91	GW01694IT	IRON	8.40	B	UG/L	JA	100	RNS
SD SED028	03/18/91	SS80092WC	IRON	57.5		UG/L	V	100	RNS
SS RA011	02/27/92	SS03023WS	IRON	53.4	B	UG/L	JA	100	RNS
SS RA031	03/03/92	SS03052WS	IRON	68.8	B	UG/L	JA	100	RNS
SW SW035	07/19/90	SW80017WC	IRON	709.00		UG/L		100	MS
SW SW029	09/12/90	SW80041WC	IRON	36.10	B*	UG/L		100	RNS
SW SW034	11/07/90	SW80064WC	IRON	86.8		UG/L	V	100	RNS
SW SW034	12/04/90	SW80072WC	IRON	1020		UG/L	V	100	RNS
SW SW034	04/04/91	SW80106WC	IRON	22.5		UG/L		100	RNS
SW SW034	06/13/91	SW80130WC	IRON	69		UG/L	JA	100	RNS
SW SW035	07/19/90	SW80015WC	IRON	14.50	B	UG/L		100	RNS
SW SW035	04/08/91	SW80108WC	IRON	32.0		UG/L		100	RNS
SW SW035	05/14/91	SW80122WC	IRON	50.6		UG/L	JA	100	RNS
SW SW068	12/10/90	SW80078WC	IRON	41.70	B	UG/L		100	RNS
SW SW068	03/19/91	SW80094WC	IRON	26.2		UG/L	JA	100	RNS
SW SW069	08/20/90	SW80034WC	IRON	34.00	B	UG/L		100	RNS
SD SED028	03/18/91	SS80092WC	LEAD	2.5		UG/L	JA	5	RNS
SS RA031	03/03/92	SS03052WS	LEAD	1.5	B	UG/L	JA	5	RNS
SW SW035	07/19/90	SW80017WC	LEAD	1.90	B	UG/L		5	MS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW034	12/04/90	SW80072WC	LEAD	2.5	B	UG/L	V	5	RNS
SW SW034	06/13/91	SW80130WC	LEAD	3.8		UG/L	V	5	RNS
SW SW035	04/08/91	SW80108WC	LEAD	15.7		UG/L		5	RNS
SW SW068	03/19/91	SW80094WC	LEAD	3.7		UG/L	JA	5	RNS
SW SW035	07/19/90	SW80017WC	LITHIUM	7.10	B	UG/L		100	MS
SW SW038	12/11/90	SW80080WC	LITHIUM	2.70	B	UG/L		100	RNS
GW 6886	11/25/91	GW02059IT	MAGNESIUM	17.00	B	UG/L	V	5000	RNS
GW 6886	02/26/92	GW02382IT	MAGNESIUM	14.90	B	UG/L	V	5000	RNS
GW 6986	08/20/91	GW01694IT	MAGNESIUM	13.00	B	UG/L	JA	5000	RNS
SD SED028	03/18/91	SS80092WC	MAGNESIUM	291		UG/L	V	5000	RNS
SEPSW046	08/08/91	SW80146WC	MAGNESIUM	20		UG/L	JA	5000	RNS
SS RA011	02/27/92	SS03023WS	MAGNESIUM	34.7	B	UG/L	JA	5000	RNS
SS RA031	03/03/92	SS03052WS	MAGNESIUM	180	B	UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	MAGNESIUM	12200.00		UG/L		5000	MS
SW SW034	11/07/90	SW80064WC	MAGNESIUM	50.5		UG/L	JA	5000	RNS
SW SW034	12/04/90	SW80072WC	MAGNESIUM	6440		UG/L	JA	5000	RNS
SW SW034	04/04/91	SW80106WC	MAGNESIUM	44.3		UG/L		5000	RNS
SW SW034	06/13/91	SW80130WC	MAGNESIUM	19		UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80015WC	MAGNESIUM	35.20	B	UG/L		5000	RNS
SW SW035	04/08/91	SW80108WC	MAGNESIUM	40.4		UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	MAGNESIUM	16.10	B	UG/L		5000	RNS
GW 6886	11/25/91	GW02059IT	MANGANESE	4.20	B	UG/L	V	15	RNS
GW 6886	02/26/92	GW02382IT	MANGANESE	2.60	B	UG/L	V	15	RNS
GW 6886	05/15/92	GW02826IT	MANGANESE	4.00	B	UG/L	V	15	RNS
GW 6986	08/20/91	GW01694IT	MANGANESE	2.80	B	UG/L	V	15	RNS
SD SED028	03/18/91	SS80092WC	MANGANESE	3.3		UG/L	V	15	RNS
SEPSW046	08/08/91	SW80146WC	MANGANESE	2.5		UG/L	V	15	RNS
SS RA011	02/27/92	SS03023WS	MANGANESE	2.9	B	UG/L	JA	15	RNS
SW SW035	07/19/90	SW80017WC	MANGANESE	190.00	E	UG/L		15	MS
SW SW029	09/12/90	SW80041WC	MANGANESE	2.80	B	UG/L		15	RNS
SW SW029	04/02/92	SW80189WC	MANGANESE	3.1		UG/L	JA	15	RNS
SW SW034	11/07/90	SW80064WC	MANGANESE	7.8		UG/L	JA	15	RNS

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*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW034	12/04/90	SW80072WC	MANGANESE	31.8		UG/L	V	15	RNS
SW SW034	04/04/91	SW80106WC	MANGANESE	4.6		UG/L		15	RNS
SW SW034	06/13/91	SW80130WC	MANGANESE	1.7		UG/L	V	15	RNS
SW SW035	07/19/90	SW80015WC	MANGANESE	5.00	BE	UG/L		15	RNS
SW SW035	10/03/90	SW80050WC	MANGANESE	3.30	B	UG/L		15	RNS
SW SW035	04/08/91	SW80108WC	MANGANESE	6.6		UG/L		15	RNS
SW SW035	05/14/91	SW80122WC	MANGANESE	3.2		UG/L	V	15	RNS
SW SW068	12/10/90	SW80078WC	MANGANESE	1.80	B	UG/L		15	RNS
SW SW068	03/19/91	SW80094WC	MANGANESE	2.1		UG/L	V	15	RNS
SW SW069	08/20/90	SW80034WC	MANGANESE	2.50	B	UG/L		15	RNS
GW 6886	11/25/91	GW020591T	MOLYBDENUM	4.10	B	UG/L	JA	200	RNS
GW 6886	05/15/92	GW028261T	MOLYBDENUM	3.80	B	UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	MOLYBDENUM	6.40	B	UG/L		200	MS
SW SW035	07/19/90	SW80015WC	MOLYBDENUM	4.60	B	UG/L		200	RNS
SW SW035	07/19/90	SW80017WC	NICKEL	9.90	B	UG/L		40	MS
SW SW034	04/04/91	SW80106WC	NICKEL	4.3		UG/L		40	RNS
SW SW035	07/19/90	SW80015WC	NICKEL	6.80	B	UG/L		40	RNS
GW 6886	11/25/91	GW020591T	POTASSIUM	99.60	B	UG/L	JA	5000	RNS
GW 6986	08/20/91	GW016941T	POTASSIUM	167.00	B	UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	POTASSIUM	2290.00	B	UG/L		5000	MS
SW SW034	11/07/90	SW80064WC	POTASSIUM	430		UG/L	JA	5000	RNS
SW SW034	12/04/90	SW80072WC	POTASSIUM	1480	B	UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80015WC	POTASSIUM	163.00	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	POTASSIUM	42.70	BE	UG/L		5000	RNS
GW 6886	05/15/92	GW028261T	SILICON	50.00	B	UG/L	JA		RNS
GW 6986	03/06/91	GW009261T	SILICON	170		UG/L	V		RNS
SD SED028	03/18/91	SS80092WC	SILICON	203		UG/L	V		RNS
SEPSW046	08/08/91	SW80146WC	SILICON	220		UG/L			RNS
SS RA011	02/27/92	SS03023WS	SILICON	98.9	B	UG/L	JA		RNS
SS RA031	03/03/92	SS03052WS	SILICON	301		UG/L	JA		RNS
SW SW029	04/02/92	SW80189WC	SILICON	81.7		UG/L	V		RNS
SW SW033	08/07/91	SW80144WC	SILICON	97.2		UG/L	JA		RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW034	11/07/90	SW80064WC	SILICON	91.3		UG/L	JA		RNS
SW SW034	04/04/91	SW80106WC	SILICON	170		UG/L			RNS
SW SW034	06/13/91	SW80130WC	SILICON	118		UG/L	JA		RNS
SW SW034	07/10/91	SW80138WC	SILICON	402		UG/L	JA		RNS
SW SW035	04/08/91	SW80108WC	SILICON	258		UG/L			RNS
SW SW035	05/14/91	SW80122WC	SILICON	265		UG/L	V		RNS
SW SW068	03/19/91	SW80094WC	SILICON	143		UG/L	JA		RNS
SW SW035	07/19/90	SW80017WC	SILVER	3.70	B	UG/L		10	MS
SW SW034	12/04/90	SW80072WC	SILVER	3.2	B	UG/L	V	10	RNS
SW SW035	07/19/90	SW80015WC	SILVER	2.90	B	UG/L		10	RNS
GW 6886	11/25/91	GW02059IT	SODIUM	75.10	B	UG/L	JA	5000	RNS
GW 6886	02/26/92	GW02382IT	SODIUM	140.00	B	UG/L	V	5000	RNS
GW 6886	05/15/92	GW02826IT	SODIUM	182.00	B	UG/L	V	5000	RNS
GW 6986	03/06/91	GW00926IT	SODIUM	303	B	UG/L	V	5000	RNS
GW 6986	08/20/91	GW01694IT	SODIUM	82.50	B	UG/L	V	5000	RNS
SD SED028	03/18/91	SS80092WC	SODIUM	651		UG/L	V	5000	RNS
SEPSW046	08/08/91	SW80146WC	SODIUM	97		UG/L	V	5000	RNS
SS RA011	02/27/92	SS03023WS	SODIUM	197	B	UG/L	JA	5000	RNS
SS RA031	03/03/92	SS03052WS	SODIUM	269	B	UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	SODIUM	17800.00		UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	SODIUM	54.90	B	UG/L		5000	RNS
SW SW029	04/02/92	SW80189WC	SODIUM	189		UG/L	JA	5000	RNS
SW SW033	08/07/91	SW80144WC	SODIUM	268		UG/L	JA	5000	RNS
SW SW034	11/07/90	SW80064WC	SODIUM	383		UG/L	JA	5000	RNS
SW SW034	12/04/90	SW80072WC	SODIUM	12000		UG/L	JA	5000	RNS
SW SW034	04/04/91	SW80106WC	SODIUM	516		UG/L		5000	RNS
SW SW035	07/19/90	SW80015WC	SODIUM	68.00	B	UG/L		5000	RNS
SW SW035	10/03/90	SW80050WC	SODIUM	70.50	B	UG/L		5000	RNS
SW SW035	04/08/91	SW80108WC	SODIUM	1600		UG/L		5000	RNS
SW SW035	05/14/91	SW80122WC	SODIUM	1020		UG/L	V	5000	RNS
SW SW038	12/11/90	SW80080WC	SODIUM	86.10	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	SODIUM	653.00	B	UG/L		5000	RNS

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Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW068	03/19/91	SW80094WC	SODIUM	177		UG/L	JA	5000	RNS
SW SW069	08/20/90	SW80034WC	SODIUM	37.40	B	UG/L		5000	RNS
GW 6886	11/25/91	GW020591T	STRONTIUM	2.70	B	UG/L	V	200	RNS
GW 6886	02/26/92	GW023821T	STRONTIUM	1.50	B	UG/L	V	200	RNS
GW 6986	03/06/91	GW009261T	STRONTIUM	2.4		UG/L	JA	200	RNS
GW 6986	08/20/91	GW016941T	STRONTIUM	2.40	BN	UG/L	JA	200	RNS
SD SED028	03/18/91	SS80092WC	STRONTIUM	8.1		UG/L	V	200	RNS
SEPSW046	08/08/91	SW80146WC	STRONTIUM	1.7		UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	STRONTIUM	370.00		UG/L		200	MS
SW SW034	11/07/90	SW80064WC	STRONTIUM	2.0		UG/L	JA	200	RNS
SW SW034	12/04/90	SW80072WC	STRONTIUM	166	B	UG/L	V	200	RNS
SW SW034	06/13/91	SW80130WC	STRONTIUM	1.6		UG/L	JA	200	RNS
SW SW035	07/19/90	SW80015WC	STRONTIUM	1.40	B	UG/L		200	RNS
SW SW035	05/14/91	SW80122WC	STRONTIUM	11.1		UG/L	V	200	RNS
SW SW038	12/11/90	SW80080WC	STRONTIUM	2.60	B	UG/L		200	RNS
SW SW068	12/10/90	SW80078WC	STRONTIUM	3.20	B	UG/L		200	RNS
SW SW035	07/19/90	SW80017WC	TIN	16.10	B	UG/L		200	MS
GW 6886	11/25/91	GW020591T	ANTIMONY	39.20	B	UG/L	JA	60	RNS
SW SW035	07/19/90	SW80017WC	ANTIMONY	25.10	B	UG/L		60	MS
SW SW035	07/19/90	SW80015WC	ANTIMONY	14.70	B	UG/L		60	RNS
GW 6886	11/25/91	GW020591T	BARIUM	3.30	B	UG/L	JA	200	RNS
GW 6886	05/15/92	GW028261T	BARIUM	2.10	B	UG/L	JA	200	RNS
GW 6986	08/20/91	GW016941T	BARIUM	4.40	B	UG/L	JA	200	RNS
SD SED028	03/18/91	SS80092WC	BARIUM	6.2		UG/L	V	200	RNS
SEPSW046	08/08/91	SW80146WC	BARIUM	2.6		UG/L	V	200	RNS
SS RA031	03/03/92	SS03052WS	BARIUM	1.7	B	UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	BARIUM	151.00	BE	UG/L		200	MS
SW SW029	04/02/92	SW80189WC	BARIUM	6.1		UG/L	JA	200	RNS
SW SW034	11/07/90	SW80064WC	BARIUM	6.5		UG/L	V	200	RNS
SW SW034	12/04/90	SW80072WC	BARIUM	86.5	B	UG/L	V	200	RNS
SW SW034	04/04/91	SW80106WC	BARIUM	11.0		UG/L		200	RNS
SW SW034	06/13/91	SW80130WC	BARIUM	3.5		UG/L	V	200	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW035	07/19/90	SW80015WC	BARIUM	6.60	BE	UG/L		200	RNS
SW SW035	10/03/90	SW80050WC	BARIUM	1.20	B	UG/L		200	RNS
SW SW035	04/08/91	SW80108WC	BARIUM	4.8		UG/L		200	RNS
SW SW038	12/11/90	SW80080WC	BARIUM	2.30	B	UG/L		200	RNS
SW SW068	12/10/90	SW80078WC	BARIUM	1.50	B	UG/L		200	RNS
SW SW068	03/19/91	SW80094WC	BARIUM	5.4		UG/L	V	200	RNS
GW 6886	11/25/91	GW02059IT	CADMIUM	2.10	B	UG/L	JA	5	RNS
GW 6986	08/20/91	GW01694IT	CADMIUM	1.60	B	UG/L	JA	5	RNS
SW SW035	07/19/90	SW80017WC	CADMIUM	2.40	B	UG/L		5	MS
SW SW034	04/04/91	SW80106WC	CADMIUM	6.0		UG/L		5	RNS
SW SW035	07/19/90	SW80015WC	CADMIUM	2.20	B	UG/L		5	RNS
GW 6986	08/20/91	GW01694IT	CESIUM	60.00	B	UG/L	JA	1000	RNS
GW 6886	11/25/91	GW02059IT	CHROMIUM	6.20	B	UG/L	JA	10	RNS
GW 6986	08/20/91	GW01694IT	CHROMIUM	4.70	B	UG/L	JA	10	RNS
SS RA011	02/27/92	SS03023WS	CHROMIUM	4.7	B	UG/L	JA	10	RNS
GW 6986	08/20/91	GW01694IT	COBALT	3.80	B	UG/L	JA	50	RNS
SW SW035	07/19/90	SW80017WC	COBALT	6.10	B	UG/L		50	MS
SW SW034	04/04/91	SW80106WC	COBALT	4.6		UG/L		50	RNS
SW SW035	07/19/90	SW80015WC	COBALT	6.80	B	UG/L		50	RNS
GW 6886	05/15/92	GW02826IT	COPPER	2.90	B	UG/L	JA	25	RNS
SD SED028	03/18/91	SS80092WC	COPPER	3.8		UG/L	V	25	RNS
SW SW035	07/19/90	SW80017WC	COPPER	14.20	B	UG/L		25	MS
SW SW034	11/07/90	SW80064WC	COPPER	5.0		UG/L	JA	25	RNS
SW SW034	04/04/91	SW80106WC	COPPER	3.1		UG/L		25	RNS
SW SW035	07/19/90	SW80015WC	COPPER	6.70	B	UG/L		25	RNS
SW SW068	03/19/91	SW80094WC	COPPER	4.2		UG/L	V	25	RNS
SW SW035	07/19/90	SW80017WC	VANADIUM	10.20	B	UG/L		50	MS
SW SW034	12/04/90	SW80072WC	VANADIUM	6.5	B	UG/L	V	50	RNS
SW SW034	04/04/91	SW80106WC	VANADIUM	3.2		UG/L		50	RNS
SW SW035	07/19/90	SW80015WC	VANADIUM	3.40	B	UG/L		50	RNS
GW 6886	11/25/91	GW02059IT	ZINC	19.20	B	UG/L	JA	20	RNS
GW 6886	02/26/92	GW02382IT	ZINC	18.70	B	UG/L	JA	20	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	05/15/92	GW02826IT	ZINC	13.30	B	UG/L	JA	20	RNS
GW 6986	03/06/91	GW00926IT	ZINC	5.6	B	UG/L	V	20	RNS
GW 6986	08/20/91	GW01694IT	ZINC	2.50	B	UG/L	JA	20	RNS
SD SED028	03/18/91	SS80092WC	ZINC	16.9		UG/L	V	20	RNS
SEPSW046	08/08/91	SW80146WC	ZINC	3.4		UG/L	V	20	RNS
SS RA011	02/27/92	SS03023WS	ZINC	63.3		UG/L	JA	20	RNS
SS RA031	03/03/92	SS03052WS	ZINC	8.8	B	UG/L	JA	20	RNS
SW SW035	07/19/90	SW80017WC	ZINC	37.40		UG/L		20	MS
SW SW029	09/12/90	SW80041WC	ZINC	10.90	B	UG/L		20	RNS
SW SW029	04/02/92	SW80189WC	ZINC	2.4		UG/L	JA	20	RNS
SW SW034	11/07/90	SW80064WC	ZINC	39.1		UG/L	V	20	RNS
SW SW034	12/04/90	SW80072WC	ZINC	10.5	B	UG/L	V	20	RNS
SW SW034	06/13/91	SW80130WC	ZINC	5.4		UG/L	JA	20	RNS
SW SW035	07/19/90	SW80015WC	ZINC	6.80	B	UG/L		20	RNS
SW SW035	10/03/90	SW80050WC	ZINC	9.10	B	UG/L		20	RNS
SW SW035	04/08/91	SW80108WC	ZINC	5.6		UG/L		20	RNS
SW SW038	12/11/90	SW80080WC	ZINC	7.90	B	UG/L		20	RNS
SW SW068	12/10/90	SW80078WC	ZINC	8.30	BE	UG/L		20	RNS
SW SW068	03/19/91	SW80094WC	ZINC	7.5		UG/L	V	20	RNS
SW SW069	08/20/90	SW80034WC	ZINC	4.40	B	UG/L		20	RNS
GW 6886	11/25/91	GW02059IT	CALCIUM	169.00	B	UG/L	V	5000	RNS
GW 6886	02/26/92	GW02382IT	CALCIUM	150.00	B	UG/L	V	5000	RNS
GW 6886	05/15/92	GW02826IT	CALCIUM	73.40	B	UG/L	JA	5000	RNS
GW 6986	03/06/91	GW00926IT	CALCIUM	259	B	UG/L	V	5000	RNS
GW 6986	08/20/91	GW01694IT	CALCIUM	156.00	B	UG/L	V	5000	RNS
SD SED028	03/18/91	SS80092WC	CALCIUM	1490		UG/L	V	5000	RNS
SEPSW046	08/08/91	SW80146WC	CALCIUM	130		UG/L	V	5000	RNS
SS RA011	02/27/92	SS03023WS	CALCIUM	94.9	B	UG/L	JA	5000	RNS
SS RA031	03/03/92	SS03052WS	CALCIUM	108	B	UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	CALCIUM	75500.00		UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	CALCIUM	170.00	B	UG/L		5000	RNS
SW SW029	04/02/92	SW80189WC	CALCIUM	74.4		UG/L	JA	5000	RNS

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Table G6-b

Total Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW033	08/07/91	SW80144WC	CALCIUM	115		UG/L	JA	5000	RNS
SW SW034	11/07/90	SW80064WC	CALCIUM	242		UG/L	JA	5000	RNS
SW SW034	12/04/90	SW80072WC	CALCIUM	46900		UG/L	JA	5000	RNS
SW SW034	04/04/91	SW80106WC	CALCIUM	305		UG/L		5000	RNS
SW SW034	06/13/91	SW80130WC	CALCIUM	110		UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80015WC	CALCIUM	185.00	B	UG/L		5000	RNS
SW SW035	10/03/90	SW80050WC	CALCIUM	65.10	B	UG/L		5000	RNS
SW SW035	04/08/91	SW80108WC	CALCIUM	459		UG/L		5000	RNS
SW SW035	05/14/91	SW80122WC	CALCIUM	241		UG/L	V	5000	RNS
SW SW038	12/11/90	SW80080WC	CALCIUM	137.00	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	CALCIUM	252.00	B	UG/L		5000	RNS
SW SW068	03/19/91	SW80094WC	CALCIUM	119		UG/L	JA	5000	RNS
SW SW069	08/20/90	SW80034WC	CALCIUM	47.90	B	UG/L		5000	RNS
SW SW034	12/04/90	SW80072WC	PHOSPHORUS	181	B	UG/L	JA		RNS
SW SW034	12/04/90	SW80072WC	PHOSPHORUS	138	B	UG/L	V		RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G7-a

Analytes Detected in Filtered Metal QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
GW	FB	aluminum	1/2
GW	RNS	aluminum	2/6
SEP	RNS	aluminum	1/2
SW	RNS	aluminum	4/16
GW	RNS	antimony	2/6
SW	RNS	antimony	4/16
GW	FB	arsenic	1/2
GW	FB	barium	1/2
GW	RNS	barium	4/6
SEP	RNS	barium	1/2
SW	RNS	barium	5/15
SW	RNS	beryllium	1/14
SW	RNS	cadmium	1/16
GW	FB	calcium	1/2
GW	RNS	calcium	6/6
SEP	RNS	calcium	1/2
SW	RNS	calcium	13/16
GW	RNS	cesium	1/6
SW	RNS	cesium	1/16
GW	FB	chromium	1/2
SW	RNS	chromium	2/16
GW	FB	cobalt	1/2
SW	RNS	cobalt	1/16
GW	RNS	copper	2/6
SW	RNS	copper	5/16
GW	RNS	iron	6/6
SEP	RNS	iron	1/2
SW	RNS	iron	10/16
SEP	RNS	lead	1/2
SW	RNS	lead	3/15
GW	FB	lithium	1/2
GW	RNS	lithium	2/6
SEP	RNS	lithium	1/2
GW	FB	magnesium	1/2
GW	RNS	magnesium	3/4
SEP	RNS	magnesium	1/2
SW	RNS	magnesium	6/16
GW	FB	manganese	1/2
GW	RNS	manganese	6/6
SEP	RNS	manganese	1/2
SW	RNS	manganese	10/16
SW	RNS	mercury	1/14
GW	FB	molybdenum	1/2
GW	RNS	molybdenum	4/6
SW	RNS	molybdenum	2/16
GW	FB	nickel	1/2
GW	RNS	nickel	2/6

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G7-a

Analytes Detected in Filtered Metal QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
SW	RNS	nickel	1/16
GW	RNS	potassium	3/6
SEP	RNS	potassium	1/2
SW	RNS	potassium	9/16
SW	RNS	selenium	1/16
GW	RNS	silicon	1/1
SEP	RNS	silicon	1/1
SW	RNS	silicon	7/8
GW	FB	silver	1/2
GW	RNS	silver	2/6
SW	RNS	silver	4/16
GW	FB	sodium	1/2
GW	RNS	sodium	6/6
SEP	RNS	sodium	1/2
SW	RNS	sodium	15/16
GW	FB	strontium	1/2
GW	RNS	strontium	5/6
SEP	RNS	strontium	1/2
SW	RNS	strontium	4/16
GW	FB	tin	1/2
GW	RNS	tin	2/6
SW	RNS	tin	4/16
GW	RNS	vanadium	1/6
SW	RNS	vanadium	3/16
GW	FB	zinc	1/2
GW	RNS	zinc	6/6
SW	RNS	zinc	8/16

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	08/01/90	GW00186IT	ALUMINUM	21.70	BE	UG/L		200	FB
GW 6886	08/01/90	GW00188IT	ALUMINUM	53.10	BE	UG/L		200	MS
GW 6886	08/01/90	GW00189IT	ALUMINUM	54.40	BE	UG/L		200	MSD
GW 6886	08/01/90	GW00185IT	ALUMINUM	23.10	BE	UG/L		200	RNS
GW 6986	08/20/91	GW01694IT	ALUMINUM	27.30	B	UG/L		200	RNS
SEPSW046	08/08/91	SW80146WC	ALUMINUM	23		UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	ALUMINUM	43.30	B	UG/L		200	MS
SW SW029	09/12/90	SW80041WC	ALUMINUM	13.60	B	UG/L		200	RNS
SW SW034	11/07/90	SW80064WC	ALUMINUM	26.6		UG/L	V	200	RNS
SW SW035	07/19/90	SW80015WC	ALUMINUM	17.00	B	UG/L		200	RNS
SW SW035	10/03/90	SW80050WC	ALUMINUM	14.30	B	UG/L		200	RNS
GW 6886	08/01/90	GW00188IT	IRON	1250.00		UG/L		100	MS
GW 6886	08/01/90	GW00189IT	IRON	1290.00		UG/L		100	MSD
GW 6886	08/01/90	GW00185IT	IRON	15.40	B	UG/L		100	RNS
GW 6886	05/14/91	GW01287IT	IRON	10.30	B	UG/L	JA	100	RNS
GW 6886	11/25/91	GW02059IT	IRON	28.30	B	UG/L		100	RNS
GW 6886	02/26/92	GW02382IT	IRON	6.70	BE	UG/L	JA	100	RNS
GW 6886	05/15/92	GW02826IT	IRON	5.50	BE	UG/L	JA	100	RNS
GW 6986	08/20/91	GW01694IT	IRON	7.40	B	UG/L		100	RNS
SEPSW046	08/08/91	SW80146WC	IRON	31		UG/L	JA	100	RNS
SW SW035	07/19/90	SW80017WC	IRON	27.50	B	UG/L		100	MS
SW SW029	09/12/90	SW80041WC	IRON	310.00		UG/L		100	RNS
SW SW029	04/02/92	SW80189WC	IRON	57.5		UG/L	JA	100	RNS
SW SW033	08/07/91	SW80144WC	IRON	12.4		UG/L	JA	100	RNS
SW SW034	11/07/90	SW80064WC	IRON	3.4		UG/L	JA	100	RNS
SW SW034	12/04/90	SW80072WC	IRON	7.7	B	UG/L	JA	100	RNS
SW SW034	04/04/91	SW80106WC	IRON	43.9		UG/L		100	RNS
SW SW035	04/08/91	SW80108WC	IRON	19.9		UG/L		100	RNS
SW SW035	05/14/91	SW80122WC	IRON	17.9		UG/L	V	100	RNS
SW SW068	12/10/90	SW80078WC	IRON	20.90	B	UG/L		100	RNS
SW SW068	03/19/91	SW80094WC	IRON	21.4		UG/L	JA	100	RNS
SEPSW046	08/08/91	SW80146WC	LEAD	2.4		UG/L	JA	5	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW034	04/04/91	SW80106WC	LEAD	2.4		UG/L		5	RNS
SW SW034	06/13/91	SW80130WC	LEAD	3.1	I	UG/L		5	RNS
SW SW068	03/19/91	SW80094WC	LEAD	12.0		UG/L	V	5	RNS
GW 6886	08/01/90	GW00186IT	LITHIUM	5.70	B	UG/L		100	FB
GW 6886	08/01/90	GW00188IT	LITHIUM	9.90	B	UG/L		100	MS
GW 6886	08/01/90	GW00189IT	LITHIUM	5.70	B	UG/L		100	MSD
GW 6886	08/01/90	GW00185IT	LITHIUM	7.10	B	UG/L		100	RNS
GW 6986	08/20/91	GW01694IT	LITHIUM	2.00	B	UG/L		100	RNS
SEPSW046	08/08/91	SW80146WC	LITHIUM	2.1		UG/L	JA	100	RNS
SW SW035	07/19/90	SW80017WC	LITHIUM	7.20	B	UG/L		100	MS
GW 6886	08/01/90	GW00186IT	MAGNESIUM	31.00	BE	UG/L		5000	FB
GW 6886	08/01/90	GW00188IT	MAGNESIUM	8120.00	E	UG/L		5000	MS
GW 6886	08/01/90	GW00189IT	MAGNESIUM	8270.00	E	UG/L		5000	MSD
GW 6886	08/01/90	GW00185IT	MAGNESIUM	34.80	BE	UG/L		5000	RNS
GW 6886	11/25/91	GW02059IT	MAGNESIUM	13.40	B	UG/L		5000	RNS
GW 6986	08/20/91	GW01694IT	MAGNESIUM	46.60	B	UG/L		5000	RNS
SEPSW046	08/08/91	SW80146WC	MAGNESIUM	26		UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	MAGNESIUM	12200.00		UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	MAGNESIUM	28.00	B	UG/L		5000	RNS
SW SW034	11/07/90	SW80064WC	MAGNESIUM	839		UG/L	V	5000	RNS
SW SW034	12/04/90	SW80072WC	MAGNESIUM	7300		UG/L	V	5000	RNS
SW SW035	10/03/90	SW80050WC	MAGNESIUM	22.60	B	UG/L		5000	RNS
SW SW038	12/11/90	SW80080WC	MAGNESIUM	15.70	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	MAGNESIUM	15.00	B	UG/L		5000	RNS
GW 6886	08/01/90	GW00186IT	MANGANESE	2.40	B	UG/L		15	FB
GW 6886	08/01/90	GW00188IT	MANGANESE	189.00		UG/L		15	MS
GW 6886	08/01/90	GW00189IT	MANGANESE	191.00		UG/L		15	MSD
GW 6886	08/01/90	GW00185IT	MANGANESE	2.40	B	UG/L		15	RNS
GW 6886	05/14/91	GW01287IT	MANGANESE	2.20	B	UG/L	V	15	RNS
GW 6886	11/25/91	GW02059IT	MANGANESE	4.00	B	UG/L		15	RNS
GW 6886	02/26/92	GW02382IT	MANGANESE	1.30	BE	UG/L	JA	15	RNS
GW 6886	05/15/92	GW02826IT	MANGANESE	3.80	B	UG/L	V	15	RNS

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*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6986	08/20/91	GW01694IT	MANGANESE	3.00	B	UG/L		15	RNS
SEPSW046	08/08/91	SW80146WC	MANGANESE	2.8		UG/L	V	15	RNS
SW SW035	07/19/90	SW80017WC	MANGANESE	185.00		UG/L		15	MS
SW SW029	09/12/90	SW80041WC	MANGANESE	3.10	B	UG/L		15	RNS
SW SW034	11/07/90	SW80064WC	MANGANESE	5.8		UG/L	JA	15	RNS
SW SW034	12/04/90	SW80072WC	MANGANESE	8.1	B	UG/L	JA	15	RNS
SW SW034	04/04/91	SW80106WC	MANGANESE	1.7		UG/L		15	RNS
SW SW034	06/13/91	SW80130WC	MANGANESE	4.2		UG/L		15	RNS
SW SW035	07/19/90	SW80015WC	MANGANESE	3.20	B	UG/L		15	RNS
SW SW035	04/08/91	SW80108WC	MANGANESE	6.1		UG/L		15	RNS
SW SW035	05/14/91	SW80122WC	MANGANESE	3.9		UG/L	JA	15	RNS
SW SW038	12/11/90	SW80080WC	MANGANESE	1.20	B	UG/L		15	RNS
SW SW068	03/19/91	SW80094WC	MANGANESE	2.2		UG/L	V	15	RNS
SW SW068	12/10/90	SW80078WC	MERCURY	0.26	N	UG/L		0.2	RNS
GW 6886	08/01/90	GW00186IT	MOLYBDENUM	3.80	B	UG/L		200	FB
GW 6886	08/01/90	GW00188IT	MOLYBDENUM	5.90	B	UG/L		200	MS
GW 6886	08/01/90	GW00189IT	MOLYBDENUM	5.70	B	UG/L		200	MSD
GW 6886	08/01/90	GW00185IT	MOLYBDENUM	3.90	B	UG/L		200	RNS
GW 6886	05/14/91	GW01287IT	MOLYBDENUM	8.00	B	UG/L	JA	200	RNS
GW 6886	11/25/91	GW02059IT	MOLYBDENUM	5.00	B	UG/L		200	RNS
GW 6986	08/20/91	GW01694IT	MOLYBDENUM	3.80	B	UG/L		200	RNS
SW SW035	07/19/90	SW80017WC	MOLYBDENUM	4.50	B	UG/L		200	MS
SW SW029	09/12/90	SW80041WC	MOLYBDENUM	5.00	B	UG/L		200	RNS
SW SW038	12/11/90	SW80080WC	MOLYBDENUM	2.20	B	UG/L		200	RNS
GW 6886	08/01/90	GW00186IT	NICKEL	6.20	B	UG/L		40	FB
GW 6886	08/01/90	GW00188IT	NICKEL	8.70	B	UG/L		40	MS
GW 6886	08/01/90	GW00189IT	NICKEL	9.30	B	UG/L		40	MSD
GW 6886	08/01/90	GW00185IT	NICKEL	4.30	B	UG/L		40	RNS
GW 6886	05/14/91	GW01287IT	NICKEL	3.10	B	UG/L	JA	40	RNS
SW SW029	09/12/90	SW80041WC	NICKEL	7.30	B	UG/L		40	RNS
GW 6886	08/01/90	GW00188IT	POTASSIUM	1100.00	BE	UG/L		5000	MS
GW 6886	08/01/90	GW00189IT	POTASSIUM	1130.00	BE	UG/L		5000	MSD

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	05/14/91	GW012871T	POTASSIUM	108.00	B	UG/L	JA	5000	RNS
GW 6886	11/25/91	GW020591T	POTASSIUM	117.00	BE	UG/L		5000	RNS
GW 6986	08/20/91	GW016941T	POTASSIUM	89.10	B	UG/L		5000	RNS
SEPSW046	08/08/91	SW80146WC	POTASSIUM	56		UG/L	V	5000	RNS
SW SW035	07/19/90	SW80017WC	POTASSIUM	2190.00	B	UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	POTASSIUM	146.00	B	UG/L		5000	RNS
SW SW034	11/07/90	SW80064WC	POTASSIUM	668		UG/L	V	5000	RNS
SW SW034	12/04/90	SW80072WC	POTASSIUM	2030	B	UG/L	V	5000	RNS
SW SW034	06/13/91	SW80130WC	POTASSIUM	45		UG/L		5000	RNS
SW SW035	10/03/90	SW80050WC	POTASSIUM	90.20	B	UG/L		5000	RNS
SW SW038	12/11/90	SW80080WC	POTASSIUM	97.20	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	POTASSIUM	72.10	B	UG/L		5000	RNS
SW SW068	03/19/91	SW80094WC	POTASSIUM	117		UG/L	V	5000	RNS
SW SW069	08/20/90	SW80034WC	POTASSIUM	97.00	B	UG/L		5000	RNS
GW 6886	05/15/92	GW02826IT	SILICON	65.10	B	UG/L	V		RNS
SEPSW046	08/08/91	SW80146WC	SILICON	107		UG/L	JA		RNS
SW SW033	08/07/91	SW80144WC	SILICON	193		UG/L	JA		RNS
SW SW034	04/04/91	SW80106WC	SILICON	219		UG/L			RNS
SW SW034	06/13/91	SW80130WC	SILICON	110		UG/L			RNS
SW SW034	07/10/91	SW80138WC	SILICON	91.5		UG/L	JA		RNS
SW SW035	04/08/91	SW80108WC	SILICON	255		UG/L			RNS
SW SW035	05/14/91	SW80122WC	SILICON	254		UG/L	V		RNS
SW SW068	03/19/91	SW80094WC	SILICON	101		UG/L	JA		RNS
GW 6886	08/01/90	GW00186IT	SILVER	4.40	B	UG/L		10	FB
GW 6886	08/01/90	GW00188IT	SILVER	6.10	B	UG/L		10	MS
GW 6886	08/01/90	GW00189IT	SILVER	6.50	B	UG/L		10	MSD
GW 6886	08/01/90	GW00185IT	SILVER	2.80	B	UG/L		10	RNS
GW 6986	08/20/91	GW016941T	SILVER	2.30	B	UG/L		10	RNS
SW SW029	09/12/90	SW80041WC	SILVER	4.30	B	UG/L		10	RNS
SW SW034	11/07/90	SW80064WC	SILVER	4.4		UG/L	V	10	RNS
SW SW034	12/04/90	SW80072WC	SILVER	3.1	B	UG/L	V	10	RNS
SW SW035	10/03/90	SW80050WC	SILVER	7.70	B	UG/L		10	RNS

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Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	08/01/90	GW00186IT	SODIUM	149.00	B	UG/L		5000	FB
GW 6886	08/01/90	GW00188IT	SODIUM	18100.00		UG/L		5000	MS
GW 6886	08/01/90	GW00189IT	SODIUM	18400.00		UG/L		5000	MSD
GW 6886	08/01/90	GW00185IT	SODIUM	179.00	B	UG/L		5000	RNS
GW 6886	05/14/91	GW01287IT	SODIUM	159.00	B	UG/L	JA	5000	RNS
GW 6886	11/25/91	GW02059IT	SODIUM	84.30	B	UG/L		5000	RNS
GW 6886	02/26/92	GW02382IT	SODIUM	127.00	B	UG/L	V	5000	RNS
GW 6886	05/15/92	GW02826IT	SODIUM	166.00	B	UG/L	V	5000	RNS
GW 6986	08/20/91	GW01694IT	SODIUM	208.00	B	UG/L		5000	RNS
SEPSW046	08/08/91	SW80146WC	SODIUM	100		UG/L	JA	5000	RNS
SW SW035	07/19/90	SW80017WC	SODIUM	18100.00		UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	SODIUM	245.00	B	UG/L		5000	RNS
SW SW029	04/02/92	SW80189WC	SODIUM	233		UG/L	JA	5000	RNS
SW SW033	08/07/91	SW80144WC	SODIUM	299		UG/L	JA	5000	RNS
SW SW034	11/07/90	SW80064WC	SODIUM	2110		UG/L	V	5000	RNS
SW SW034	12/04/90	SW80072WC	SODIUM	13600		UG/L	V	5000	RNS
SW SW034	04/04/91	SW80106WC	SODIUM	383		UG/L		5000	RNS
SW SW034	06/13/91	SW80130WC	SODIUM	130		UG/L		5000	RNS
SW SW035	07/19/90	SW80015WC	SODIUM	104.00	B	UG/L		5000	RNS
SW SW035	10/03/90	SW80050WC	SODIUM	278.00	B	UG/L		5000	RNS
SW SW035	04/08/91	SW80108WC	SODIUM	1450		UG/L		5000	RNS
SW SW035	05/14/91	SW80122WC	SODIUM	1230		UG/L	V	5000	RNS
SW SW038	12/11/90	SW80080WC	SODIUM	290.00	B	UG/L		5000	RNS
SW SW068	12/10/90	SW80078WC	SODIUM	882.00	B	UG/L		5000	RNS
SW SW068	03/19/91	SW80094WC	SODIUM	163		UG/L	JA	5000	RNS
SW SW069	08/20/90	SW80034WC	SODIUM	441.00	B	UG/L		5000	RNS
GW 6886	08/01/90	GW00186IT	STRONTIUM	1.90	BE	UG/L		200	FB
GW 6886	08/01/90	GW00188IT	STRONTIUM	214.00	E	UG/L		200	MS
GW 6886	08/01/90	GW00189IT	STRONTIUM	217.00	E	UG/L		200	MSD
GW 6886	08/01/90	GW00185IT	STRONTIUM	1.70	BE	UG/L		200	RNS
GW 6886	05/14/91	GW01287IT	STRONTIUM	3.30	B	UG/L	V	200	RNS
GW 6886	11/25/91	GW02059IT	STRONTIUM	2.70	B	UG/L		200	RNS

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Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	02/26/92	GW02382IT	STRONTIUM	1.30	BE	UG/L	JA	200	RNS
GW 6986	08/20/91	GW01694IT	STRONTIUM	3.30	B	UG/L		200	RNS
SEPSW046	08/08/91	SW80146WC	STRONTIUM	1.9		UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	STRONTIUM	380.00		UG/L		200	MS
SW SW034	11/07/90	SW80064WC	STRONTIUM	11.5		UG/L	V	200	RNS
SW SW034	12/04/90	SW80072WC	STRONTIUM	200	B	UG/L	V	200	RNS
SW SW035	05/14/91	SW80122WC	STRONTIUM	16.8		UG/L	V	200	RNS
SW SW068	12/10/90	SW80078WC	STRONTIUM	1.40	B	UG/L		200	RNS
GW 6886	08/01/90	GW00186IT	TIN	19.10	B	UG/L		200	FB
GW 6886	08/01/90	GW00188IT	TIN	20.70	B	UG/L		200	MS
GW 6886	08/01/90	GW00189IT	TIN	31.30	B	UG/L		200	MSD
GW 6886	08/01/90	GW00185IT	TIN	17.60	B	UG/L		200	RNS
GW 6886	05/14/91	GW01287IT	TIN	10.30	B	UG/L	JA	200	RNS
SW SW035	07/19/90	SW80017WC	TIN	16.80	B	UG/L		200	MS
SW SW029	09/12/90	SW80041WC	TIN	13.80	B	UG/L		200	RNS
SW SW034	12/04/90	SW80072WC	TIN	36.0	B	UG/L	V	200	RNS
SW SW035	07/19/90	SW80015WC	TIN	11.90	B	UG/L		200	RNS
SW SW038	12/11/90	SW80080WC	TIN	9.20	B	UG/L		200	RNS
GW 6886	05/14/91	GW01287IT	ANTIMONY	23.90	B	UG/L	JA	60	RNS
GW 6886	11/25/91	GW02059IT	ANTIMONY	42.70	B	UG/L		60	RNS
SW SW029	09/12/90	SW80041WC	ANTIMONY	22.40	B	UG/L		60	RNS
SW SW034	06/13/91	SW80130WC	ANTIMONY	21		UG/L		60	RNS
SW SW035	10/03/90	SW80050WC	ANTIMONY	8.00	B	UG/L		60	RNS
SW SW038	12/11/90	SW80080WC	ANTIMONY	15.30	B	UG/L		60	RNS
GW 6886	08/01/90	GW00186IT	ARSENIC	1.00	B	UG/L		10	FB
GW 6886	08/01/90	GW00188IT	ARSENIC	1.00	B	UG/L		10	MS
GW 6886	08/01/90	GW00189IT	ARSENIC	2.00	B	UG/L		10	MSD
GW 6886	08/01/90	GW00186IT	BARIUM	4.70	BE	UG/L		200	FB
GW 6886	08/01/90	GW00188IT	BARIUM	90.50	BE	UG/L		200	MS
GW 6886	08/01/90	GW00189IT	BARIUM	91.90	BE	UG/L		200	MSD
GW 6886	08/01/90	GW00185IT	BARIUM	4.40	BE	UG/L		200	RNS
GW 6886	05/14/91	GW01287IT	BARIUM	2.70	B	UG/L	V	200	RNS

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Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	11/25/91	GW02059IT	BARIUM	1.60	B	UG/L		200	RNS
GW 6986	08/20/91	GW01694IT	BARIUM	1.70	BE	UG/L		200	RNS
SEPSW046	08/08/91	SW80146WC	BARIUM	2.2		UG/L	V	200	RNS
SW SW035	07/19/90	SW80017WC	BARIUM	154.00	BE	UG/L		200	MS
SW SW029	09/12/90	SW80041WC	BARIUM	1.80	B	UG/L		200	RNS
SW SW034	12/04/90	SW80072WC	BARIUM	85.5	B	UG/L	V	200	RNS
SW SW034	06/13/91	SW80130WC	BARIUM	1.0		UG/L		200	RNS
SW SW035	07/19/90	SW80015WC	BARIUM	3.00	BE	UG/L		200	RNS
SW SW035	04/08/91	SW80108WC	BARIUM	8.6		UG/L		200	RNS
SW SW035	07/19/90	SW80017WC	BERYLLIUM	4.00	B	UG/L		5	MS
SW SW035	07/19/90	SW80015WC	BERYLLIUM	4.00	B	UG/L		5	RNS
SW SW029	09/12/90	SW80041WC	CADMIUM	2.70	B	UG/L		5	RNS
GW 6986	08/20/91	GW01694IT	CESIUM	120.00	B	UG/L		1000	RNS
SW SW038	12/11/90	SW80080WC	CESIUM	200.00	B	UG/L		1000	RNS
GW 6886	08/01/90	GW00186IT	CHROMIUM	6.70	B	UG/L		10	FB
GW 6886	08/01/90	GW00188IT	CHROMIUM	11.40		UG/L		10	MS
GW 6886	08/01/90	GW00189IT	CHROMIUM	12.10		UG/L		10	MSD
SW SW029	09/12/90	SW80041WC	CHROMIUM	6.50	B	UG/L		10	RNS
SW SW029	04/02/92	SW80189WC	CHROMIUM	2.0		UG/L	JA	10	RNS
GW 6886	08/01/90	GW00186IT	COBALT	5.00	B	UG/L		50	FB
GW 6886	08/01/90	GW00188IT	COBALT	6.30	B	UG/L		50	MS
GW 6886	08/01/90	GW00189IT	COBALT	7.30	B	UG/L		50	MSD
SW SW029	09/12/90	SW80041WC	COBALT	5.70	B	UG/L		50	RNS
GW 6886	05/15/92	GW02826IT	COPPER	3.00	B	UG/L	JA	25	RNS
GW 6986	08/20/91	GW01694IT	COPPER	4.80	B	UG/L		25	RNS
SW SW035	07/19/90	SW80017WC	COPPER	5.00	B	UG/L		25	MS
SW SW029	09/12/90	SW80041WC	COPPER	5.50	B	UG/L		25	RNS
SW SW035	07/19/90	SW80015WC	COPPER	4.50	B	UG/L		25	RNS
SW SW035	10/03/90	SW80050WC	COPPER	5.00	B	UG/L		25	RNS
SW SW038	12/11/90	SW80080WC	COPPER	2.80	B	UG/L		25	RNS
SW SW068	12/10/90	SW80078WC	COPPER	3.10	B	UG/L		25	RNS
GW 6886	08/01/90	GW00188IT	VANADIUM	6.70	B	UG/L		50	MS

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Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	08/01/90	GW00189IT	VANADIUM	7.20	B	UG/L		50	MSD
GW 6986	08/20/91	GW01694IT	VANADIUM	2.00	B	UG/L		50	RNS
SW SW035	07/19/90	SW80017WC	VANADIUM	6.50	B	UG/L		50	MS
SW SW029	09/12/90	SW80041WC	VANADIUM	2.50	B	UG/L		50	RNS
SW SW034	11/07/90	SW80064WC	VANADIUM	4.7		UG/L	V	50	RNS
SW SW034	12/04/90	SW80072WC	VANADIUM	3.7	B	UG/L	V	50	RNS
GW 6886	08/01/90	GW00186IT	ZINC	6.00	B	UG/L		20	FB
GW 6886	08/01/90	GW00189IT	ZINC	3.40	B	UG/L		20	MSD
GW 6886	08/01/90	GW00185IT	ZINC	5.30	B	UG/L		20	RNS
GW 6886	05/14/91	GW01287IT	ZINC	10.40	B	UG/L	JA	20	RNS
GW 6886	11/25/91	GW02059IT	ZINC	8.70	BE	UG/L		20	RNS
GW 6886	02/26/92	GW02382IT	ZINC	9.30	B	UG/L	JA	20	RNS
GW 6886	05/15/92	GW02826IT	ZINC	23.60		UG/L	JA	20	RNS
GW 6986	08/20/91	GW01694IT	ZINC	9.00	B	UG/L		20	RNS
SW SW035	07/19/90	SW80017WC	ZINC	14.20	B	UG/L		20	MS
SW SW029	09/12/90	SW80041WC	ZINC	7.60	B	UG/L		20	RNS
SW SW029	04/02/92	SW80189WC	ZINC	1.9		UG/L	JA	20	RNS
SW SW035	07/19/90	SW80015WC	ZINC	5.00	B	UG/L		20	RNS
SW SW035	10/03/90	SW80050WC	ZINC	3.30	B	UG/L		20	RNS
SW SW035	04/08/91	SW80108WC	ZINC	3.0		UG/L		20	RNS
SW SW035	05/14/91	SW80122WC	ZINC	15.7		UG/L	JA	20	RNS
SW SW038	12/11/90	SW80080WC	ZINC	14.40	B	UG/L		20	RNS
SW SW068	12/10/90	SW80078WC	ZINC	6.40	B	UG/L		20	RNS
GW 6886	08/01/90	GW00186IT	CALCIUM	178.00	BE	UG/L		5000	FB
GW 6886	08/01/90	GW00188IT	CALCIUM	36500.00	E	UG/L		5000	MS
GW 6886	08/01/90	GW00189IT	CALCIUM	37100.00	E	UG/L		5000	MSD
GW 6886	08/01/90	GW00185IT	CALCIUM	182.00	BE	UG/L		5000	RNS
GW 6886	05/14/91	GW01287IT	CALCIUM	204.00	B	UG/L	JA	5000	RNS
GW 6886	11/25/91	GW02059IT	CALCIUM	162.00	B	UG/L		5000	RNS
GW 6886	02/26/92	GW02382IT	CALCIUM	156.00	B	UG/L	V	5000	RNS
GW 6886	05/15/92	GW02826IT	CALCIUM	51.00	B	UG/L	JA	5000	RNS
GW 6986	08/20/91	GW01694IT	CALCIUM	383.00	B	UG/L		5000	RNS

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Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
GW 6886	08/01/90	GW00186IT	ALUMINUM	21.70	BE	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	ALUMINUM	53.10	BE	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	ALUMINUM	54.40	BE	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	ALUMINUM	23.10	BE	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	ALUMINUM	27.30	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	ALUMINUM	23		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	ALUMINUM	43.30	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	ALUMINUM	13.60	B	UG/L		FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	ALUMINUM	26.6		UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	ALUMINUM	17.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	ALUMINUM	14.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00188IT	IRON	1250.00		UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	IRON	1290.00		UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	IRON	15.40	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	IRON	10.30	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	IRON	28.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW02382IT	IRON	6.70	BE	UG/L	JA	FILTERED	RNS	TRG
GW 6886	05/15/92	GW02826IT	IRON	5.50	BE	UG/L	JA	FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	IRON	7.40	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	IRON	31		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	IRON	27.50	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	IRON	310.00		UG/L		FILTERED	RNS	TRG
SW SW029	04/02/92	SW80189WC	IRON	57.5		UG/L	JA	FILTERED	RNS	TRG
SW SW033	08/07/91	SW80144WC	IRON	12.4		UG/L	JA	FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	IRON	3.4		UG/L	JA	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	IRON	7.7	B	UG/L	JA	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	IRON	43.9		UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	IRON	19.9		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	IRON	17.9		UG/L	V	FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	IRON	20.90	B	UG/L		FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	IRON	21.4		UG/L	JA	FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	LEAD	2.4		UG/L	JA	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	LEAD	2.4		UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	LEAD	3.1	I	UG/L		FILTERED	RNS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
SW SW068	03/19/91	SW80094WC	LEAD	12.0		UG/L	V	FILTERED	RNS	TRG
GW 6886	08/01/90	GW001861T	LITHIUM	5.70	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW001881T	LITHIUM	9.90	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW001891T	LITHIUM	5.70	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW001851T	LITHIUM	7.10	B	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW016941T	LITHIUM	2.00	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	LITHIUM	2.1		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	LITHIUM	7.20	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW001861T	MAGNESIUM	31.00	BE	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW001881T	MAGNESIUM	8120.00	E	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW001891T	MAGNESIUM	8270.00	E	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW001851T	MAGNESIUM	34.80	BE	UG/L		FILTERED	RNS	TRG
GW 6886	11/25/91	GW020591T	MAGNESIUM	13.40	B	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW016941T	MAGNESIUM	46.60	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	MAGNESIUM	26		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	MAGNESIUM	12200.00		UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	MAGNESIUM	28.00	B	UG/L		FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	MAGNESIUM	839		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	MAGNESIUM	7300		UG/L	V	FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	MAGNESIUM	22.60	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	MAGNESIUM	15.70	B	UG/L		FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	MAGNESIUM	15.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW001861T	MANGANESE	2.40	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW001881T	MANGANESE	189.00		UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW001891T	MANGANESE	191.00		UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW001851T	MANGANESE	2.40	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW012871T	MANGANESE	2.20	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	11/25/91	GW020591T	MANGANESE	4.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW023821T	MANGANESE	1.30	BE	UG/L	JA	FILTERED	RNS	TRG
GW 6886	05/15/92	GW028261T	MANGANESE	3.80	B	UG/L	V	FILTERED	RNS	TRG
GW 6986	08/20/91	GW016941T	MANGANESE	3.00	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	MANGANESE	2.8		UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	MANGANESE	185.00		UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	MANGANESE	3.10	B	UG/L		FILTERED	RNS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
SW SW034	11/07/90	SW80064WC	MANGANESE	5.8		UG/L	JA	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	MANGANESE	8.1	B	UG/L	JA	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	MANGANESE	1.7		UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	MANGANESE	4.2		UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	MANGANESE	3.20	B	UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	MANGANESE	6.1		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	MANGANESE	3.9		UG/L	JA	FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	MANGANESE	1.20	B	UG/L		FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	MANGANESE	2.2		UG/L	V	FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	MERCURY	0.26	N	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	MOLYBDENUM	3.80	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	MOLYBDENUM	5.90	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	MOLYBDENUM	5.70	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	MOLYBDENUM	3.90	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	MOLYBDENUM	8.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	MOLYBDENUM	5.00	B	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	MOLYBDENUM	3.80	B	UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	MOLYBDENUM	4.50	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	MOLYBDENUM	5.00	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	MOLYBDENUM	2.20	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	NICKEL	6.20	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	NICKEL	8.70	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	NICKEL	9.30	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	NICKEL	4.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	NICKEL	3.10	B	UG/L	JA	FILTERED	RNS	TRG
SW SW029	09/12/90	SW80041WC	NICKEL	7.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00188IT	POTASSIUM	1100.00	BE	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	POTASSIUM	1130.00	BE	UG/L		FILTERED	MSD	TRG
GW 6886	05/14/91	GW01287IT	POTASSIUM	108.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	POTASSIUM	117.00	BE	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	POTASSIUM	89.10	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	POTASSIUM	56		UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	POTASSIUM	2190.00	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	POTASSIUM	146.00	B	UG/L		FILTERED	RNS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
SW SW034	11/07/90	SW80064WC	POTASSIUM	668		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	POTASSIUM	2030	B	UG/L	V	FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	POTASSIUM	45		UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	POTASSIUM	90.20	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	POTASSIUM	97.20	B	UG/L		FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	POTASSIUM	72.10	B	UG/L		FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	POTASSIUM	117		UG/L	V	FILTERED	RNS	TRG
SW SW069	08/20/90	SW80034WC	POTASSIUM	97.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/15/92	GW02826IT	SILICON	65.10	B	UG/L	V	FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	SILICON	107		UG/L	JA	FILTERED	RNS	TRG
SW SW033	08/07/91	SW80144WC	SILICON	193		UG/L	JA	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	SILICON	219		UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	SILICON	110		UG/L		FILTERED	RNS	TRG
SW SW034	07/10/91	SW80138WC	SILICON	91.5		UG/L	JA	FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	SILICON	255		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	SILICON	254		UG/L	V	FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	SILICON	101		UG/L	JA	FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	SILVER	4.40	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	SILVER	6.10	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	SILVER	6.50	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	SILVER	2.80	B	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	SILVER	2.30	B	UG/L		FILTERED	RNS	TRG
SW SW029	09/12/90	SW80041WC	SILVER	4.30	B	UG/L		FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	SILVER	4.4		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	SILVER	3.1	B	UG/L	V	FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	SILVER	7.70	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	SODIUM	149.00	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	SODIUM	18100.00		UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	SODIUM	18400.00		UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	SODIUM	179.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	SODIUM	159.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	SODIUM	84.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW02382IT	SODIUM	127.00	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	05/15/92	GW02826IT	SODIUM	166.00	B	UG/L	V	FILTERED	RNS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
GW 6986	08/20/91	GW01694IT	SODIUM	208.00	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	SODIUM	100		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	SODIUM	18100.00		UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	SODIUM	245.00	B	UG/L		FILTERED	RNS	TRG
SW SW029	04/02/92	SW80189WC	SODIUM	233		UG/L	JA	FILTERED	RNS	TRG
SW SW033	08/07/91	SW80144WC	SODIUM	299		UG/L	JA	FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	SODIUM	2110		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	SODIUM	13600		UG/L	V	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	SODIUM	383		UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	SODIUM	130		UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	SODIUM	104.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	SODIUM	278.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	SODIUM	1450		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	SODIUM	1230		UG/L	V	FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	SODIUM	290.00	B	UG/L		FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	SODIUM	882.00	B	UG/L		FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	SODIUM	163		UG/L	JA	FILTERED	RNS	TRG
SW SW069	08/20/90	SW80034WC	SODIUM	441.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	STRONTIUM	1.90	BE	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	STRONTIUM	214.00	E	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	STRONTIUM	217.00	E	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	STRONTIUM	1.70	BE	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	STRONTIUM	3.30	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	STRONTIUM	2.70	B	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW02382IT	STRONTIUM	1.30	BE	UG/L	JA	FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	STRONTIUM	3.30	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	STRONTIUM	1.9		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	STRONTIUM	380.00		UG/L		FILTERED	MS	TRG
SW SW034	11/07/90	SW80064WC	STRONTIUM	11.5		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	STRONTIUM	200	B	UG/L	V	FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	STRONTIUM	16.8		UG/L	V	FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	STRONTIUM	1.40	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	TIN	19.10	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	TIN	20.70	B	UG/L		FILTERED	MS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
GW 6886	08/01/90	GW00189IT	TIN	31.30	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	TIN	17.60	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	TIN	10.30	B	UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	TIN	16.80	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	TIN	13.80	B	UG/L		FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	TIN	36.0	B	UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	TIN	11.90	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	TIN	9.20	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	ANTIMONY	23.90	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	ANTIMONY	42.70	B	UG/L		FILTERED	RNS	TRG
SW SW029	09/12/90	SW80041WC	ANTIMONY	22.40	B	UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	ANTIMONY	21		UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	ANTIMONY	8.00	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	ANTIMONY	15.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	ARSENIC	1.00	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	ARSENIC	1.00	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	ARSENIC	2.00	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00186IT	BARIUM	4.70	BE	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	BARIUM	90.50	BE	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	BARIUM	91.90	BE	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	BARIUM	4.40	BE	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	BARIUM	2.70	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	BARIUM	1.60	B	UG/L		FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	BARIUM	1.70	BE	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	BARIUM	2.2		UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	BARIUM	154.00	BE	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	BARIUM	1.80	B	UG/L		FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	BARIUM	85.5	B	UG/L	V	FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	BARIUM	1.0		UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	BARIUM	3.00	BE	UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	BARIUM	8.6		UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	BERYLLIUM	4.00	B	UG/L		FILTERED	MS	TRG
SW SW035	07/19/90	SW80015WC	BERYLLIUM	4.00	B	UG/L		FILTERED	RNS	TRG
SW SW029	09/12/90	SW80041WC	CADMIUM	2.70	B	UG/L		FILTERED	RNS	TRG

RNS - [redacted]nsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
GW 6986	08/20/91	GW01694IT	CESIUM	120.00	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	CESIUM	200.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	CHROMIUM	6.70	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	CHROMIUM	11.40		UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	CHROMIUM	12.10		UG/L		FILTERED	MSD	TRG
SW SW029	09/12/90	SW80041WC	CHROMIUM	6.50	B	UG/L		FILTERED	RNS	TRG
SW SW029	04/02/92	SW80189WC	CHROMIUM	2.0		UG/L	JA	FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	COBALT	5.00	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00188IT	COBALT	6.30	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	COBALT	7.30	B	UG/L		FILTERED	MSD	TRG
SW SW029	09/12/90	SW80041WC	COBALT	5.70	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/15/92	GW02826IT	COPPER	3.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	COPPER	4.80	B	UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	COPPER	5.00	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	COPPER	5.50	B	UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	COPPER	4.50	B	UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	COPPER	5.00	B	UG/L		FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	COPPER	2.80	B	UG/L		FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	COPPER	3.10	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW00188IT	VANADIUM	6.70	B	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW00189IT	VANADIUM	7.20	B	UG/L		FILTERED	MSD	TRG
GW 6986	08/20/91	GW01694IT	VANADIUM	2.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	VANADIUM	6.50	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	VANADIUM	2.50	B	UG/L		FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	VANADIUM	4.7		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	VANADIUM	3.7	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	08/01/90	GW00186IT	ZINC	6.00	B	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW00189IT	ZINC	3.40	B	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW00185IT	ZINC	5.30	B	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW01287IT	ZINC	10.40	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW02059IT	ZINC	8.70	BE	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW02382IT	ZINC	9.30	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	05/15/92	GW02826IT	ZINC	23.60		UG/L	JA	FILTERED	RNS	TRG
GW 6986	08/20/91	GW01694IT	ZINC	9.00	B	UG/L		FILTERED	RNS	TRG

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	Analytical Group	Field Type	Lab Type
SW SW035	07/19/90	SW80017WC	ZINC	14.20	B	UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	ZINC	7.60	B	UG/L		FILTERED	RNS	TRG
SW SW029	04/02/92	SW80189WC	ZINC	1.9		UG/L	JA	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80015WC	ZINC	5.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	ZINC	3.30	B	UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	ZINC	3.0		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	ZINC	15.7		UG/L	JA	FILTERED	RNS	TRG
SW SW038	12/11/90	SW80080WC	ZINC	14.40	B	UG/L		FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	ZINC	6.40	B	UG/L		FILTERED	RNS	TRG
GW 6886	08/01/90	GW001861T	CALCIUM	178.00	BE	UG/L		FILTERED	FB	TRG
GW 6886	08/01/90	GW001881T	CALCIUM	36500.00	E	UG/L		FILTERED	MS	TRG
GW 6886	08/01/90	GW001891T	CALCIUM	37100.00	E	UG/L		FILTERED	MSD	TRG
GW 6886	08/01/90	GW001851T	CALCIUM	182.00	BE	UG/L		FILTERED	RNS	TRG
GW 6886	05/14/91	GW012871T	CALCIUM	204.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6886	11/25/91	GW020591T	CALCIUM	162.00	B	UG/L		FILTERED	RNS	TRG
GW 6886	02/26/92	GW023821T	CALCIUM	156.00	B	UG/L	V	FILTERED	RNS	TRG
GW 6886	05/15/92	GW028261T	CALCIUM	51.00	B	UG/L	JA	FILTERED	RNS	TRG
GW 6986	08/20/91	GW016941T	CALCIUM	383.00	B	UG/L		FILTERED	RNS	TRG
SEPSW046	08/08/91	SW80146WC	CALCIUM	130		UG/L	V	FILTERED	RNS	TRG
SW SW035	07/19/90	SW80017WC	CALCIUM	76200.00		UG/L		FILTERED	MS	TRG
SW SW029	09/12/90	SW80041WC	CALCIUM	140.00	B	UG/L		FILTERED	RNS	TRG
SW SW029	04/02/92	SW80189WC	CALCIUM	238		UG/L	JA	FILTERED	RNS	TRG
SW SW033	08/07/91	SW80144WC	CALCIUM	89.8		UG/L	JA	FILTERED	RNS	TRG
SW SW034	11/07/90	SW80064WC	CALCIUM	261		UG/L	V	FILTERED	RNS	TRG
SW SW034	12/04/90	SW80072WC	CALCIUM	55600		UG/L	V	FILTERED	RNS	TRG
SW SW034	04/04/91	SW80106WC	CALCIUM	208		UG/L		FILTERED	RNS	TRG
SW SW034	06/13/91	SW80130WC	CALCIUM	51		UG/L		FILTERED	RNS	TRG
SW SW035	10/03/90	SW80050WC	CALCIUM	117.00	B	UG/L		FILTERED	RNS	TRG
SW SW035	04/08/91	SW80108WC	CALCIUM	338		UG/L		FILTERED	RNS	TRG
SW SW035	05/14/91	SW80122WC	CALCIUM	287		UG/L	V	FILTERED	RNS	TRG
SW SW068	12/10/90	SW80078WC	CALCIUM	146.00	B	UG/L		FILTERED	RNS	TRG
SW SW068	03/19/91	SW80094WC	CALCIUM	87.3		UG/L	JA	FILTERED	RNS	TRG
SW SW069	08/20/90	SW80034WC	CALCIUM	64.50	B	UG/L		FILTERED	RNS	TRG
SW SW029	09/12/90	SW80041WC	SELENIUM	1.00	BW	UG/L		FILTERED	RNS	TRG

RNS - [illegible]nsate Blank; TB - Trip Blank; FB - Field Blank

Table G7-b

Filtered Metal QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SEPSW046	08/08/91	SW80146WC	CALCIUM	130		UG/L	V	5000	RNS
SW SW035	07/19/90	SW80017WC	CALCIUM	76200.00		UG/L		5000	MS
SW SW029	09/12/90	SW80041WC	CALCIUM	140.00	B	UG/L		5000	RNS
SW SW029	04/02/92	SW80189WC	CALCIUM	238		UG/L	JA	5000	RNS
SW SW033	08/07/91	SW80144WC	CALCIUM	89.8		UG/L	JA	5000	RNS
SW SW034	11/07/90	SW80064WC	CALCIUM	261		UG/L	V	5000	RNS
SW SW034	12/04/90	SW80072WC	CALCIUM	55600		UG/L	V	5000	RNS
SW SW034	04/04/91	SW80106WC	CALCIUM	208		UG/L		5000	RNS
SW SW034	06/13/91	SW80130WC	CALCIUM	51		UG/L		5000	RNS
SW SW035	10/03/90	SW80050WC	CALCIUM	117.00	B	UG/L		5000	RNS
SW SW035	04/08/91	SW80108WC	CALCIUM	338		UG/L		5000	RNS
SW SW035	05/14/91	SW80122WC	CALCIUM	287		UG/L	V	5000	RNS
SW SW068	12/10/90	SW80078WC	CALCIUM	146.00	B	UG/L		5000	RNS
SW SW068	03/19/91	SW80094WC	CALCIUM	87.3		UG/L	JA	5000	RNS
SW SW069	08/20/90	SW80034WC	CALCIUM	64.50	B	UG/L		5000	RNS
SW SW029	09/12/90	SW80041WC	SELENIUM	1.00	BW	UG/L		5	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G8-a

Isotopes Detected in Total Radiochemistry QC Blanks

MEDIA	FIELD TYPE*	ISOTOPE	DETECTIONS/OBSERVATIONS
GW	FB	uranium-233,-234	2/2
GW	RNS	uranium-233,-234	1/1
SD	RNS	uranium-233,-234	1/1
SEP	RNS	uranium-233,-234	1/1
SW	RNS	uranium-233,-234	5/5
GW	FB	uranium-235	2/2
GW	RNS	uranium-235	1/1
SD	RNS	uranium-235	1/1
SEP	RNS	uranium-235	1/1
SW	RNS	uranium-235	5/5
GW	FB	uranium-238	2/2
GW	RNS	uranium-238	1/1
SD	RNS	uranium-238	1/1
SEP	RNS	uranium-238	1/1
SW	RNS	uranium-238	5/5

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G8-a

Isotopes Detected in Total Radiochemistry QC Blanks

MEDIA	FIELD TYPE*	ISOTOPE	DETECTIONS/OBSERVATIONS
GW	FB	americium-241	3/3
GW	RNS	americium-241	7/7
SEP	RNS	americium-241	2/2
SS	RNS	americium-241	2/2
SW	RNS	americium-241	10/10
SW	TB	americium-241	1/1
GW	FB	cesium-137	2/2
GW	RNS	cesium-137	8/8
SD	RNS	cesium-137	1/1
SEP	RNS	cesium-137	1/1
SW	RNS	cesium-137	7/7
SW	TB	cesium-137	1/1
GW	FB	gross alpha	1/1
SW	RNS	gross alpha	4/4
GW	FB	gross alpha	1/1
GW	RNS	gross alpha	1/1
SD	RNS	gross alpha	1/1
SW	RNS	gross alpha	1/1
SW	RNS	gross beta	4/4
GW	FB	gross beta	1/1
GW	RNS	gross beta	1/1
SD	RNS	gross beta	1/1
SW	RNS	gross beta	1/1
GW	FB	gross beta particle activity	1/1
GW	FB	plutonium-238	1/1
GW	RNS	plutonium-238	1/1
SW	TB	plutonium-238	1/1
GW	FB	plutonium-239	1/1
GW	FB	plutonium-239,-240	2/2
GW	RNS	plutonium-239,-240	8/8
SD	RNS	plutonium-239,-240	1/1
SEP	RNS	plutonium-239,-240	2/2
SS	RNS	plutonium-239,-240	2/2
SW	RNS	plutonium-239,-240	8/8
SW	TB	plutonium-239,-240	1/1
GW	FB	strontium-89,-90	1/1
GW	RNS	strontium-89,-90	1/1
SD	RNS	strontium-89,-90	1/1
SEP	RNS	strontium-89,-90	1/1
SW	RNS	strontium-89,-90	2/2
GW	FB	strontium-90	1/1
SW	RNS	strontium-90	4/4
GW	FB	tritium	3/3
GW	RNS	tritium	7/7
SEP	RNS	tritium	2/2
SW	RNS	tritium	9/15
SW	TB	tritium	1/1

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	05/23/90	FB68860523021430	PLUTONIUM-239,-240	-0.001	0.004	PCI/L	A	0.01	FB
GW 6886	08/01/90	GW00186IT	PLUTONIUM-239,-240	.001753	.00203J	PCI/L	A	0.01	FB
GW 6886	05/23/90	ER68860523021342	PLUTONIUM-239,-240	-0.002	0.003	PCI/L	A	0.01	RNS
GW 6886	08/01/90	GW00185IT	PLUTONIUM-239,-240	.0004019	.00111J	PCI/L	A	0.01	RNS
GW 6886	05/14/91	GW01287IT	PLUTONIUM-239,-240	0	.00283J	PCI/L	V	0.01	RNS
GW 6886	11/25/91	GW02059IT	PLUTONIUM-239,-240	-.000233	.000467J	PCI/L	A	0.01	RNS
GW 6886	02/26/92	GW02382IT	PLUTONIUM-239,-240	-.000421	.000842J	PCI/L	V	0.01	RNS
GW 6886	05/15/92	GW02826IT	PLUTONIUM-239,-240	.0005303	.00106J	PCI/L	A	0.01	RNS
GW 6986	03/06/91	GW00926IT	PLUTONIUM-239,-240	0	.00472J	PCI/L		0.01	RNS
GW 6986	08/20/91	GW01694IT	PLUTONIUM-239,-240	-.000277	.000554J	PCI/L	V	0.01	RNS
SD SED028	03/18/91	SS80092WC	PLUTONIUM-239,-240	.008193	.00524J	PCI/L	V	0.01	RNS
SEPSW045	06/13/90	SW00068WC	PLUTONIUM-239,-240	0.005	0.004	PCI/L	A	0.01	RNS
SEPSW046	08/08/91	SW80146WC	PLUTONIUM-239,-240	.001813	.0043J	PCI/L		0.01	RNS
SS RA011	02/27/92	SS03023WS	PLUTONIUM-239,-240	.001405	.00273J	PCI/L	A	0.01	RNS
SS RA031	03/03/92	SS03052WS	PLUTONIUM-239,-240	.005558	.005J	PCI/L	A	0.01	RNS
SW SW029	09/12/90	SW80041WC	PLUTONIUM-239,-240	.001684	.0033006	PCI/L	V	0.01	RNS
SW SW033	08/07/91	SW80144WC	PLUTONIUM-239,-240	-.000407	.000815J	PCI/L		0.01	RNS
SW SW034	08/13/90	SW80030WC	PLUTONIUM-239,-240	-.000618	.0024245	PCI/L		0.01	RNS
SW SW034	06/13/91	SW80130WC	PLUTONIUM-239,-240	0	.0034J	PCI/L		0.01	RNS
SW SW034	07/10/91	SW80138WC	PLUTONIUM-239,-240	.001913	.00271J	PCI/L	A	0.01	RNS
SW SW035	10/03/90	SW80050WC	PLUTONIUM-239,-240	-.003146	.0046276	PCI/L	R	0.01	RNS
SW SW068	06/13/90	SW00018WC	PLUTONIUM-239,-240	0.007	0.007	PCI/L	A	0.01	RNS
SW SW069	08/20/90	SW80034WC	PLUTONIUM-239,-240	-.003834	.0045139	PCI/L		0.01	RNS
SW SW070	05/15/90	SW070W051590R	PLUTONIUM-239,-240	0.006	0.006	PCI/L	A	0.01	RNS
SW SW068	06/13/90	SW00016WC	PLUTONIUM-239,-240	.01695	.00927X	PCI/L		0.01	TB
GW 6986	02/12/90	G69860290001FB	GROSS ALPHA	0.0	0.4	PCI/L		2	FB
SW SW029	09/12/90	SW80041WC	GROSS ALPHA	-.4317	.779492	PCI/L	V	2	RNS
SW SW034	08/13/90	SW80030WC	GROSS ALPHA	.3662	1.068788	PCI/L		2	RNS
SW SW035	10/03/90	SW80050WC	GROSS ALPHA	-.2704	.754404	PCI/L	V	2	RNS
SW SW069	08/20/90	SW80034WC	GROSS ALPHA	.04478	.801444	PCI/L		2	RNS
GW 6886	05/23/90	FB68860523021430	GROSS ALPHA	0.2	0.3	PCI/L	A	2	FB
GW 6886	05/23/90	ER68860523021342	GROSS ALPHA	0.6	0.3	PCI/L		2	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SD SED028	03/18/91	SS80092WC	GROSS ALPHA	.03533	.141J	PCI/L	A	2	RNS
SW SW029	04/02/92	SW80189WC	GROSS ALPHA	5.22	0.000	PCI/L	R	2	RNS
SW SW070	05/15/90	SW070W051590R	GROSS ALPHA	0.0	0.3	PCI/L	A	2	RNS
SW SW029	09/12/90	SW80041WC	GROSS BETA	-.1845	1.021944	PCI/L	A	4	RNS
SW SW034	08/13/90	SW80030WC	GROSS BETA	.2947	1.07212	PCI/L		4	RNS
SW SW035	10/03/90	SW80050WC	GROSS BETA	.5965	.983332	PCI/L	V	4	RNS
SW SW069	08/20/90	SW80034WC	GROSS BETA	-.114	1.108772	PCI/L		4	RNS
GW 6886	05/23/90	FB68860523021430	GROSS BETA	0.6	1.5	PCI/L	A	4	FB
GW 6886	05/23/90	ER68860523021342	GROSS BETA	-0.3	1.5	PCI/L		4	RNS
SD SED028	03/18/91	SS80092WC	GROSS BETA	.169	.644J	PCI/L	A	4	RNS
SW SW029	04/02/92	SW80189WC	GROSS BETA	12.7	0.000	PCI/L	R	4	RNS
SW SW070	05/15/90	SW070W051590R	GROSS BETA	0.1	1.6	PCI/L	A	4	RNS
GW 6886	05/23/90	FB68860523021430	TRITIUM	170	230	PCI/L	JA	400	FB
GW 6886	08/01/90	GW001861T	TRITIUM	73.22	198J	PCI/L		400	FB
GW 6986	02/12/90	G69860290001FB	TRITIUM	-10	100	PCI/L		400	FB
GW 6886	05/23/90	ER68860523021342	TRITIUM	60	180	PCI/L	R	400	RNS
GW 6886	08/01/90	GW001851T	TRITIUM	51.74	197J	PCI/L		400	RNS
GW 6886	05/14/91	GW012871T	TRITIUM	-107	185J	PCI/L	V	400	RNS
GW 6886	11/25/91	GW020591T	TRITIUM	42.42	225J	PCI/L	V	400	RNS
GW 6886	02/26/92	GW023821T	TRITIUM	-30.9	235J	PCI/L	A	400	RNS
GW 6886	05/15/92	GW028261T	TRITIUM	72.24	222J	PCI/L	V	400	RNS
GW 6986	03/06/91	GW009261T	TRITIUM	46.4	208J	PCI/L	V	400	RNS
GW 6986	08/20/91	GW016941T	TRITIUM	-163	193J	PCI/L	V	400	RNS
SEPSW045	06/13/90	SW00068WC	TRITIUM	246	131	PCI/L	JA	400	RNS
SEPSW046	08/08/91	SW80146WC	TRITIUM	15.84	199J	PCI/L	V	400	RNS
SW SW029	09/12/90	SW80041WC	TRITIUM	97.93605	131.4887	PCI/L	R	400	RNS
SW SW029	04/02/92	SW80189WC	TRITIUM	59.46	0.000J	PCI/L	R	400	RNS
SW SW033	08/07/91	SW80144WC	TRITIUM	-25.2	198J	PCI/L	V	400	RNS
SW SW034	08/13/90	SW80030WC	TRITIUM	-180.72	152.5126	PCI/L	JA	400	RNS
SW SW034	12/04/90	SW80072WC	TRITIUM	180.0	110.0	PCI/L	V	400	RNS
SW SW034	06/13/91	SW80130WC	TRITIUM	74.25	190J	PCI/L	V	400	RNS
SW SW034	07/10/91	SW80138WC	TRITIUM	3.861	190J	PCI/L	V	400	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW035	10/03/90	SW80050WC	TRITIUM	63.43244	168.7732	PCI/L	R	400	RNS
SW SW035	05/14/91	SW80122WC	TRITIUM	-15.0	100.0	PCI/L	V	400	RNS
SW SW068	06/13/90	SW00018WC	TRITIUM	176	130	PCI/L	JA	400	RNS
SW SW069	08/20/90	SW80034WC	TRITIUM	-181.258	152.9634	PCI/L	JA	400	RNS
SW SW070	05/15/90	SW070W051590R	TRITIUM	170	180	PCI/L	JA	400	RNS
SW SW068	06/13/90	SW00016WC	TRITIUM	188.8	226J	PCI/L	A	400	TB
GW 6886	05/23/90	FB68860523021430	CESIUM-137	0.39	0.40	PCI/L	R	1	FB
GW 6886	08/01/90	GW00186IT	CESIUM-137	.3074	.448J	PCI/L	A	1	FB
GW 6986	02/12/90	G69860290001FB	CESIUM-137	0.19	0.60	PCI/L		1	FB
GW 6886	05/23/90	ER68860523021342	CESIUM-137	0.47	0.61	PCI/L	A	1	RNS
GW 6886	08/01/90	GW00185IT	CESIUM-137	-.244	.427J	PCI/L	A	1	RNS
GW 6886	05/14/91	GW01287IT	CESIUM-137	-.398	.467J	PCI/L	A	1	RNS
GW 6886	11/25/91	GW02059IT	CESIUM-137	.2003	.49J	PCI/L	A	1	RNS
GW 6886	02/26/92	GW02382IT	CESIUM-137	.1579	.494J	PCI/L	A	1	RNS
GW 6886	05/15/92	GW02826IT	CESIUM-137	-.486	.449J	PCI/L	A	1	RNS
GW 6986	03/06/91	GW00926IT	CESIUM-137	.05052	.414J	PCI/L	A	1	RNS
GW 6986	08/20/91	GW01694IT	CESIUM-137	.3465	.438J	PCI/L		1	RNS
SD SED028	03/18/91	SS80092WC	CESIUM-137	.247	.421J	PCI/L	A	1	RNS
SEPSW046	08/08/91	SW80146WC	CESIUM-137	.08162	.345J	PCI/L	A	1	RNS
SW SW029	09/12/90	SW80041WC	CESIUM-137	.003148	.201292	PCI/L	V	1	RNS
SW SW033	08/07/91	SW80144WC	CESIUM-137	.573	.311J	PCI/L	A	1	RNS
SW SW034	08/13/90	SW80030WC	CESIUM-137	.04388	.1447068	PCI/L		1	RNS
SW SW034	06/13/91	SW80130WC	CESIUM-137	-.176	.41J	PCI/L	A	1	RNS
SW SW034	07/10/91	SW80138WC	CESIUM-137	-.236	.37J	PCI/L	A	1	RNS
SW SW035	10/03/90	SW80050WC	CESIUM-137	.07987	.205212	PCI/L	V	1	RNS
SW SW069	08/20/90	SW80034WC	CESIUM-137	.3674	.498624	PCI/L		1	RNS
SW SW070	05/15/90	SW070W051590R	CESIUM-137	0.44	0.36	PCI/L	R	1	RNS
SW SW068	06/13/90	SW00016WC	CESIUM-137	.3406	.302J	PCI/L	A	1	TB
GW 6986	02/12/90	G69860290001FB	STRONTIUM-90	0.33	0.35	PCI/L			FB
SW SW029	09/12/90	SW80041WC	STRONTIUM-90	.1725	.256956	PCI/L	V		RNS
SW SW034	08/13/90	SW80030WC	STRONTIUM-90	.05931	.1644048	PCI/L			RNS
SW SW035	10/03/90	SW80050WC	STRONTIUM-90	.06513	.156506	PCI/L	A		RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW069	08/20/90	SW80034WC	STRONTIUM-90	-.005101	.132006	PCI/L			RNS
GW 6886	05/23/90	FB68860523021430	URANIUM-233,-234	0.34	0.48	PCI/L	A	0.6	FB
GW 6986	02/12/90	G69860290001FB	URANIUM-233,-234	0.10	0.23	PCI/L		0.6	FB
GW 6886	05/23/90	ER68860523021342	URANIUM-233,-234	0.09	0.08	PCI/L	A	0.6	RNS
SD SED028	03/18/91	SS80092WC	URANIUM-233,-234	.1107	.157J	PCI/L	V	0.6	RNS
SEPSW045	06/13/90	SW00068WC	URANIUM-233,-234	0.04	0.13	PCI/L	A	0.6	RNS
SW SW029	09/12/90	SW80041WC	URANIUM-233,-234	.4243	.1209908	PCI/L	A	0.6	RNS
SW SW029	04/02/92	SW80189WC	URANIUM-233,-234	0.063	0.038J	PCI/L	R	0.6	RNS
SW SW034	08/13/90	SW80030WC	URANIUM-233,-234	.1957	.1551928	PCI/L		0.6	RNS
SW SW035	10/03/90	SW80050WC	URANIUM-233,-234	.03873	.076048	PCI/L	R	0.6	RNS
SW SW068	06/13/90	SW00018WC	URANIUM-233,-234	0.23	0.33	PCI/L	A	0.6	RNS
SW SW069	08/20/90	SW80034WC	URANIUM-233,-234	.1825	.1804572	PCI/L		0.6	RNS
SW SW070	05/15/90	SW070W051590R	URANIUM-233,-234	0.00	0.10	PCI/L	A	0.6	RNS
GW 6886	05/23/90	FB68860523021430	STRONTIUM-89,-90	0.05	0.16	PCI/L	A	1	FB
GW 6886	05/23/90	ER68860523021342	STRONTIUM-89,-90	0.03	0.17	PCI/L	A	1	RNS
SD SED028	03/18/91	SS80092WC	STRONTIUM-89,-90	.1423	.323J	PCI/L	A	1	RNS
SEPSW045	06/13/90	SW00068WC	STRONTIUM-89,-90	0.28	0.19	PCI/L	A	1	RNS
SW SW029	04/02/92	SW80189WC	STRONTIUM-89,-90	3.218	0.000	PCI/L	R	1	RNS
SW SW068	06/13/90	SW00018WC	STRONTIUM-89,-90	0.07	0.16	PCI/L	A	1	RNS
SW SW070	05/15/90	SW070W051590R	STRONTIUM-89,-90	0.33	0.28	PCI/L	A	1	RNS
GW 6986	02/12/90	G69860290001FB	GROSS BETA PARTICLE ACTIVITY	1.0	1.7	PCI/L			FB
GW 6886	08/01/90	GW00186IT	PLUTONIUM-238	-.000146	.000293J	PCI/L			FB
GW 6886	08/01/90	GW00185IT	PLUTONIUM-238	0	.00161J	PCI/L			RNS
SW SW068	06/13/90	SW00016WC	PLUTONIUM-238	0	.00364J	PCI/L			TB
GW 6886	05/23/90	FB68860523021430	AMERICIUM-241	0.011	0.008	PCI/L	A	0.01	FB
GW 6886	08/01/90	GW00186IT	AMERICIUM-241	.001821	.00233J	PCI/L	A	0.01	FB
GW 6986	02/12/90	G69860290001FB	AMERICIUM-241	0.005	0.005	PCI/L		0.01	FB
GW 6886	05/23/90	ER68860523021342	AMERICIUM-241	0.008	0.008	PCI/L	A	0.01	RNS
GW 6886	08/01/90	GW00185IT	AMERICIUM-241	.0006117	.00123J	PCI/L	A	0.01	RNS
GW 6886	05/14/91	GW01287IT	AMERICIUM-241	0	1.72J	PCI/L	R	0.01	RNS
GW 6886	11/25/91	GW02059IT	AMERICIUM-241	.003501	.00406J	PCI/L	A	0.01	RNS
GW 6886	02/26/92	GW02382IT	AMERICIUM-241	.003927	.00455J	PCI/L	A	0.01	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
GW 6886	05/15/92	GW02826IT	AMERICIUM-241	.001242	.00176J	PCI/L	A	0.01	RNS
GW 6986	03/06/91	GW00926IT	AMERICIUM-241	-.0408	.0373J	PCI/L		0.01	RNS
GW 6986	08/20/91	GW01694IT	AMERICIUM-241	.001119	.00224J	PCI/L	A	0.01	RNS
SD SED028	03/18/91	SS80092WC	AMERICIUM-241	.002377	.00673J	PCI/L	R	0.01	RNS
SEPSW045	06/13/90	SW00068WC	AMERICIUM-241	0.006	0.004	PCI/L	A	0.01	RNS
SEPSW046	08/08/91	SW80146WC	AMERICIUM-241	.005496	.00474J	PCI/L		0.01	RNS
SS RA011	02/27/92	SS03023WS	AMERICIUM-241	.004611	.00464J	PCI/L	A	0.01	RNS
SS RA031	03/03/92	SS03052WS	AMERICIUM-241	.001609	.00578J	PCI/L	A	0.01	RNS
SW SW029	09/12/90	SW80041WC	AMERICIUM-241	.004484	.0052763	PCI/L	V	0.01	RNS
SW SW029	04/02/92	SW80189WC	AMERICIUM-241	0.002	0.007J	PCI/L	R	0.01	RNS
SW SW033	08/07/91	SW80144WC	AMERICIUM-241	.003573	.00414J	PCI/L		0.01	RNS
SW SW034	08/13/90	SW80030WC	AMERICIUM-241	.001319	.0077577	PCI/L		0.01	RNS
SW SW034	04/04/91	SW80106WC	AMERICIUM-241	.035	.2700	PCI/L	A	0.01	RNS
SW SW034	06/13/91	SW80130WC	AMERICIUM-241	.005005	.00711J	PCI/L		0.01	RNS
SW SW034	07/10/91	SW80138WC	AMERICIUM-241	.0009327	.00187J	PCI/L	V	0.01	RNS
SW SW035	10/03/90	SW80050WC	AMERICIUM-241	.005	.0065542	PCI/L	R	0.01	RNS
SW SW035	04/08/91	SW80108WC	AMERICIUM-241	.038	.4000	PCI/L	A	0.01	RNS
SW SW068	06/13/90	SW00018WC	AMERICIUM-241	0.004	0.007	PCI/L	A	0.01	RNS
SW SW069	08/20/90	SW80034WC	AMERICIUM-241	-.001787	.0052548	PCI/L		0.01	RNS
SW SW070	05/15/90	SW070W051590R	AMERICIUM-241	0.001	0.006	PCI/L	A	0.01	RNS
SW SW068	06/13/90	SW00016WC	AMERICIUM-241	.003847	.00639J	PCI/L		0.01	TB
GW 6986	02/12/90	G69860290001FB	PLUTONIUM-239	0.006	0.005	PCI/L			FB
GW 6886	05/23/90	FB68860523021430	URANIUM-235	0.15	0.34	PCI/L	A	0.6	FB
GW 6986	02/12/90	G69860290001FB	URANIUM-235	0.11	0.22	PCI/L		0.6	FB
GW 6886	05/23/90	ER68860523021342	URANIUM-235	-0.01	0.01	PCI/L	A	0.6	RNS
SD SED028	03/18/91	SS80092WC	URANIUM-235	-.0111	.0222J	PCI/L	V	0.6	RNS
SEPSW045	06/13/90	SW00068WC	URANIUM-235	-0.01	0.04	PCI/L	A	0.6	RNS
SW SW029	09/12/90	SW80041WC	URANIUM-235	.03669	.0360052	PCI/L	A	0.6	RNS
SW SW029	04/02/92	SW80189WC	URANIUM-235	0.008	0.016J	PCI/L	R	0.6	RNS
SW SW034	08/13/90	SW80030WC	URANIUM-235	0.0	.0928452	PCI/L		0.6	RNS
SW SW035	10/03/90	SW80050WC	URANIUM-235	.04688	.0920612	PCI/L	R	0.6	RNS
SW SW068	06/13/90	SW00018WC	URANIUM-235	-0.01	0.06	PCI/L	A	0.6	RNS

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Table G8-b

Total Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW069	08/20/90	SW80034WC	URANIUM-235	0.0	.1082704	PCI/L		0.6	RNS
SW SW070	05/15/90	SW070W051590R	URANIUM-235	-0.01	0.03	PCI/L	A	0.6	RNS
SW SW029	04/02/92	SW80189WC	PLUTONIUM-236	0.023	0.017	PCI/L	R		RNS
GW 6886	05/23/90	FB68860523021430	URANIUM-238	0.15	0.34	PCI/L	A	0.6	FB
GW 6986	02/12/90	G69860290001FB	URANIUM-238	0.10	0.24	PCI/L		0.6	FB
GW 6886	05/23/90	ER68860523021342	URANIUM-238	0.05	0.05	PCI/L	A	0.6	RNS
SD SED028	03/18/91	SS80092WC	URANIUM-238	.1107	.157J	PCI/L	V	0.6	RNS
SEPSW045	06/13/90	SW00068WC	URANIUM-238	0.10	0.18	PCI/L	A	0.6	RNS
SW SW029	09/12/90	SW80041WC	URANIUM-238	.4015	.1061928	PCI/L	A	0.6	RNS
SW SW029	04/02/92	SW80189WC	URANIUM-238	0.027	0.024J	PCI/L	R	0.6	RNS
SW SW034	08/13/90	SW80030WC	URANIUM-238	.03913	.0768516	PCI/L		0.6	RNS
SW SW035	10/03/90	SW80050WC	URANIUM-238	.07745	.0764596	PCI/L	R	0.6	RNS
SW SW068	06/13/90	SW00018WC	URANIUM-238	0.16	0.27	PCI/L	A	0.6	RNS
SW SW069	08/20/90	SW80034WC	URANIUM-238	0.0	.0894152	PCI/L		0.6	RNS
SW SW070	05/15/90	SW070W051590R	URANIUM-238	0.10	0.15	PCI/L	A	0.6	RNS

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Table G9-a

Isotopes Detected in Filtered Radiochemistry QC Blanks

MEDIA	FIELD TYPE*	ISOTOPE	DETECTIONS/OBSERVATIONS
SW	RNS	americium-241	3/5
SW	RNS	cesium-137	5/10
SW	RNS	gross alpha	2/8
GW	FB	gross alpha	1/1
GW	RNS	gross alpha	5/5
SEP	RNS	gross alpha	1/1
SW	RNS	gross alpha	3/3
SW	TB	gross alpha	1/1
GW	FB	gross beta	1/1
GW	RNS	gross beta	7/7
SEP	RNS	gross beta	1/1
SS	RNS	gross beta	2/2
SW	RNS	gross beta	4/4
SW	TB	gross beta	1/1
SW	RNS	gross beta particle activity	2/8
SW	RNS	neptunium-237	2/7
SS	RNS	radium-226	2/2
SS	RNS	radium-228	2/2
SW	RNS	strontium-89	1/8
GW	RNS	strontium-89,-90	6/6
SEP	RNS	strontium-89,-90	1/1
SW	RNS	strontium-89,-90	6/6
SW	TB	strontium-89,-90	1/1
SW	RNS	strontium-90	1/8
GW	FB	uranium-233,-234	1/1
GW	RNS	uranium-233,-234	6/6
SEP	RNS	uranium-233,-234	1/1
SS	RNS	uranium-233,-234	2/2
SW	RNS	uranium-233,-234	3/3
SW	TB	uranium-233,-234	1/1
SW	RNS	uranium-234	1/6
GW	FB	uranium-235	1/1
GW	RNS	uranium-235	6/6
SEP	RNS	uranium-235	1/1
SS	RNS	uranium-235	2/2
SW	RNS	uranium-235	3/10
SW	TB	uranium-235	1/1
GW	FB	uranium-238	1/1
GW	RNS	uranium-238	6/6
SEP	RNS	uranium-238	1/1
SS	RNS	uranium-238	2/2
SW	RNS	uranium-238	4/10
SW	TB	uranium-238	1/1

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G9-b

Filtered Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW035	05/14/91	SW80122WC	GROSS ALPHA	.70	1.450	PCI/L	V	2	RNS
SW SW068	12/10/90	SW80078WC	GROSS ALPHA	1.200	.9000	PCI/L	V	2	RNS
GW 6886	08/01/90	GW00186IT	GROSS ALPHA	0	.114J	PCI/L	A	2	FB
GW 6886	08/01/90	GW00185IT	GROSS ALPHA	.04647	.151J	PCI/L	A	2	RNS
GW 6886	05/14/91	GW01287IT	GROSS ALPHA	.2288	.221J	PCI/L	A	2	RNS
GW 6886	11/25/91	GW02059IT	GROSS ALPHA	.04439	.145J	PCI/L	R	2	RNS
GW 6886	02/26/92	GW02382IT	GROSS ALPHA	-.0415	.0275J	PCI/L		2	RNS
GW 6886	05/15/92	GW02826IT	GROSS ALPHA	.08093	.144J	PCI/L		2	RNS
GW 6986	03/06/91	GW00926IT	GROSS ALPHA	0	.128J	PCI/L		2	RNS
GW 6986	08/20/91	GW01694IT	GROSS ALPHA	.01315	.159J	PCI/L	R	2	RNS
SEPSW046	08/08/91	SW80146WC	GROSS ALPHA	.2539	.236J	PCI/L	A	2	RNS
SS RA011	02/27/92	SS03023WS	GROSS ALPHA	.1335	.172J	PCI/L	R	2	RNS
SS RA031	03/03/92	SS03052WS	GROSS ALPHA	.04967	.12J	PCI/L	R	2	RNS
SW SW033	08/07/91	SW80144WC	GROSS ALPHA	-.0207	.0888J	PCI/L	A	2	RNS
SW SW034	06/13/91	SW80130WC	GROSS ALPHA	-.0424	.0853J	PCI/L	A	2	RNS
SW SW034	07/10/91	SW80138WC	GROSS ALPHA	.1338	.199J	PCI/L	R	2	RNS
SW SW035	07/19/90	SW80015WC	GROSS ALPHA	-.144	.0466J	PCI/L	A	2	RNS
SW SW068	06/13/90	SW00016WC	GROSS ALPHA	2.098	1.29X	PCI/L		2	TB
GW 6886	08/01/90	GW00186IT	GROSS BETA	.612	.682J	PCI/L	A	4	FB
GW 6886	08/01/90	GW00185IT	GROSS BETA	.4783	.709J	PCI/L	A	4	RNS
GW 6886	05/14/91	GW01287IT	GROSS BETA	.4382	.665J	PCI/L	A	4	RNS
GW 6886	11/25/91	GW02059IT	GROSS BETA	-.418	.591J	PCI/L	A	4	RNS
GW 6886	02/26/92	GW02382IT	GROSS BETA	.2263	.624J	PCI/L		4	RNS
GW 6886	05/15/92	GW02826IT	GROSS BETA	-.0668	.628J	PCI/L		4	RNS
GW 6986	03/06/91	GW00926IT	GROSS BETA	.2268	.703J	PCI/L		4	RNS
GW 6986	08/20/91	GW01694IT	GROSS BETA	-.137	.632J	PCI/L	A	4	RNS
SEPSW046	08/08/91	SW80146WC	GROSS BETA	1.19	.796J	PCI/L	A	4	RNS
SS RA011	02/27/92	SS03023WS	GROSS BETA	.5319	.726J	PCI/L	A	4	RNS
SS RA031	03/03/92	SS03052WS	GROSS BETA	.243	.651J	PCI/L	A	4	RNS
SW SW033	08/07/91	SW80144WC	GROSS BETA	.06697	.694J	PCI/L	A	4	RNS
SW SW034	06/13/91	SW80130WC	GROSS BETA	-.246	.649J	PCI/L	A	4	RNS
SW SW034	07/10/91	SW80138WC	GROSS BETA	.8717	.781J	PCI/L	A	4	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G9-b

Filtered Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW035	07/19/90	SW80015WC	GROSS BETA	1.046	.736J	PCI/L	A	4	RNS
SW SW068	06/13/90	SW00016WC	GROSS BETA	3.027	1.11J	PCI/L		4	TB
SW SW034	08/13/90	SW80030WC	CESIUM-137	.04	.07	PCI/L	A	1	RNS
SW SW034	04/04/91	SW80106WC	CESIUM-137	.1200	.4700	PCI/L	JA	1	RNS
SW SW035	04/08/91	SW80108WC	CESIUM-137	-0.17	.4400	PCI/L	JA	1	RNS
SW SW035	05/14/91	SW80122WC	CESIUM-137	.2400	.3900	PCI/L	JA	1	RNS
SW SW069	08/20/90	SW80034WC	CESIUM-137	.37	.50	PCI/L	JA	1	RNS
SW SW035	05/14/91	SW80122WC	STRONTIUM-90	.1600	.3770	PCI/L	JA		RNS
GW 6886	08/01/90	GW00186IT	URANIUM-233,-234	-.0115	.0231J	PCI/L	V	0.6	FB
GW 6886	08/01/90	GW00185IT	URANIUM-233,-234	.08292	.15J	PCI/L	V	0.6	RNS
GW 6886	05/14/91	GW01287IT	URANIUM-233,-234	0	.26J	PCI/L	A	0.6	RNS
GW 6886	11/25/91	GW02059IT	URANIUM-233,-234	-.00491	.00984J	PCI/L	A	0.6	RNS
GW 6886	02/26/92	GW02382IT	URANIUM-233,-234	.06787	.163J	PCI/L	A	0.6	RNS
GW 6886	05/15/92	GW02826IT	URANIUM-233,-234	0	.259J	PCI/L	R	0.6	RNS
GW 6986	03/06/91	GW00926IT	URANIUM-233,-234	.03769	.0904J	PCI/L		0.6	RNS
GW 6986	08/20/91	GW01694IT	URANIUM-233,-234	.2965	.23J	PCI/L	A	0.6	RNS
SEPSW046	08/08/91	SW80146WC	URANIUM-233,-234	-.0078	.0111J	PCI/L		0.6	RNS
SS RA011	02/27/92	SS03023WS	URANIUM-233,-234	-.0173	.0156J	PCI/L	A	0.6	RNS
SS RA031	03/03/92	SS03052WS	URANIUM-233,-234	.1224	.15J	PCI/L	A	0.6	RNS
SW SW033	08/07/91	SW80144WC	URANIUM-233,-234	.04956	.108J	PCI/L		0.6	RNS
SW SW034	06/13/91	SW80130WC	URANIUM-233,-234	-.00351	.00704J	PCI/L		0.6	RNS
SW SW034	07/10/91	SW80138WC	URANIUM-233,-234	.08904	.138J	PCI/L	V	0.6	RNS
SW SW068	06/13/90	SW00016WC	URANIUM-233,-234	1.19	.24X	PCI/L		0.6	TB
GW 6886	08/01/90	GW00186IT	STRONTIUM-89,-90	.4695	.242J	PCI/L	R	1	FB
GW 6886	08/01/90	GW00185IT	STRONTIUM-89,-90	.3959	.225J	PCI/L	R	1	RNS
GW 6886	05/14/91	GW01287IT	STRONTIUM-89,-90	.1154	.247J	PCI/L	A	1	RNS
GW 6886	11/25/91	GW02059IT	STRONTIUM-89,-90	.3332	.281J	PCI/L	A	1	RNS
GW 6886	02/26/92	GW02382IT	STRONTIUM-89,-90	.4077	.321J	PCI/L	A	1	RNS
GW 6886	05/15/92	GW02826IT	STRONTIUM-89,-90	.3181	.357J	PCI/L	A	1	RNS
GW 6986	03/06/91	GW00926IT	STRONTIUM-89,-90	.3081	.324J	PCI/L	A	1	RNS
GW 6986	08/20/91	GW01694IT	STRONTIUM-89,-90	.07743	.244J	PCI/L		1	RNS
SEPSW046	08/08/91	SW80146WC	STRONTIUM-89,-90	.6406	.424J	PCI/L	A	1	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

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Table G9-b

Filtered Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW033	08/07/91	SW80144WC	STRONTIUM-89,-90	.1792	.189J	PCI/L	A	1	RNS
SW SW034	08/13/90	SW80030WC	STRONTIUM-89,-90	.06	.08	PCI/L	A	1	RNS
SW SW034	06/13/91	SW80130WC	STRONTIUM-89,-90	.3415	.326J	PCI/L	A	1	RNS
SW SW034	07/10/91	SW80138WC	STRONTIUM-89,-90	.8462	.464J	PCI/L	A	1	RNS
SW SW035	07/19/90	SW80015WC	STRONTIUM-89,-90	.05459	.419J	PCI/L	A	1	RNS
SW SW069	08/20/90	SW80034WC	STRONTIUM-89,-90	0	.13	PCI/L	A	1	RNS
SW SW068	06/13/90	SW00016WC	STRONTIUM-89,-90	.5881	.529J	PCI/L		1	TB
SW SW034	12/04/90	SW80072WC	GROSS BETA PARTICLE ACTIVITY	2.700	1.600	PCI/L	V		RNS
SW SW035	05/14/91	SW80122WC	GROSS BETA PARTICLE ACTIVITY	.11	2.320	PCI/L	V		RNS
SW SW038	12/11/90	SW80080WC	URANIUM-234	.8300	.5200	PCI/L	A		RNS
SS RA011	02/27/92	SS03023WS	RADIUM-226	.0389	.0486J	PCI/L	A	0.5	RNS
SS RA031	03/03/92	SS03052WS	RADIUM-226	-.0309	.047J	PCI/L	A	0.5	RNS
SW SW034	04/04/91	SW80106WC	NEPTUNIUM-237	.4400	.7800	PCI/L			RNS
SW SW035	04/08/91	SW80108WC	NEPTUNIUM-237	.2600	.8600	PCI/L			RNS
SW SW035	05/14/91	SW80122WC	NEPTUNIUM-237	.1400	.6200	PCI/L	R		RNS
SW SW035	05/14/91	SW80122WC	STRONTIUM-89	-0.31	.5250	PCI/L	V		RNS
SW SW034	11/07/90	SW80064WC	AMERICIUM-241	.0480	.0190	PCI/L	A	0.01	RNS
SW SW068	12/10/90	SW80078WC	AMERICIUM-241	.0290	.0130	PCI/L	A	0.01	RNS
SW SW068	03/19/91	SW80094WC	AMERICIUM-241	.0140	.0130	PCI/L		0.01	RNS
GW 6886	08/01/90	GW00186IT	URANIUM-235	-.0115	.0231J	PCI/L	V	0.6	FB
GW 6886	08/01/90	GW00185IT	URANIUM-235	-.0207	.0294J	PCI/L	V	0.6	RNS
GW 6886	05/14/91	GW01287IT	URANIUM-235	-.0347	.0493J	PCI/L	A	0.6	RNS
GW 6886	11/25/91	GW02059IT	URANIUM-235	-.00491	.00984J	PCI/L	A	0.6	RNS
GW 6886	02/26/92	GW02382IT	URANIUM-235	-.0129	.0184J	PCI/L	A	0.6	RNS
GW 6886	05/15/92	GW02826IT	URANIUM-235	0	.259J	PCI/L	R	0.6	RNS
GW 6986	03/06/91	GW00926IT	URANIUM-235	-.00718	.0102J	PCI/L		0.6	RNS
GW 6986	08/20/91	GW01694IT	URANIUM-235	-.00686	.00973J	PCI/L	A	0.6	RNS
SEPSW046	08/08/91	SW80146WC	URANIUM-235	-.0039	.00782J	PCI/L		0.6	RNS
SS RA011	02/27/92	SS03023WS	URANIUM-235	-.00692	.00982J	PCI/L	A	0.6	RNS
SS RA031	03/03/92	SS03052WS	URANIUM-235	-.0103	.012J	PCI/L	A	0.6	RNS
SW SW033	08/07/91	SW80144WC	URANIUM-235	-.00431	.00864J	PCI/L		0.6	RNS
SW SW034	06/13/91	SW80130WC	URANIUM-235	0	.132J	PCI/L		0.6	RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G9-b

Filtered Radiochemistry QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit			Val Code	CRQL*	Field Type
SW SW034	07/10/91	SW80138WC	URANIUM-235	-.00774	.011J	PCI/L	V	0.6	RNS
SW SW068	06/13/90	SW00016WC	URANIUM-235	.02789	.0323J	PCI/L		0.6	TB
SS RA011	02/27/92	SS03023WS	RADIUM-228	.1003	.314J	PCI/L	A	1	RNS
SS RA031	03/03/92	SS03052WS	RADIUM-228	.2672	.346J	PCI/L	A	1	RNS
GW 6886	08/01/90	GW00186IT	URANIUM-238	-.0115	.0231J	PCI/L	V	0.6	FB
GW 6886	08/01/90	GW00185IT	URANIUM-238	0	.155J	PCI/L	V	0.6	RNS
GW 6886	05/14/91	GW01287IT	URANIUM-238	-.0347	.0493J	PCI/L	A	0.6	RNS
GW 6886	11/25/91	GW02059IT	URANIUM-238	-.00982	.0139J	PCI/L	A	0.6	RNS
GW 6886	02/26/92	GW02382IT	URANIUM-238	.1163	.232J	PCI/L	A	0.6	RNS
GW 6886	05/15/92	GW02826IT	URANIUM-238	.08617	.173J	PCI/L	R	0.6	RNS
GW 6986	03/06/91	GW00926IT	URANIUM-238	.07179	.128J	PCI/L		0.6	RNS
GW 6986	08/20/91	GW01694IT	URANIUM-238	.4251	.276J	PCI/L	A	0.6	RNS
SEPSW046	08/08/91	SW80146WC	URANIUM-238	.04487	.098J	PCI/L		0.6	RNS
SS RA011	02/27/92	SS03023WS	URANIUM-238	.01903	.0884J	PCI/L	A	0.6	RNS
SS RA031	03/03/92	SS03052WS	URANIUM-238	-.00689	.00979J	PCI/L	A	0.6	RNS
SW SW033	08/07/91	SW80144WC	URANIUM-238	.1034	.153J	PCI/L		0.6	RNS
SW SW034	06/13/91	SW80130WC	URANIUM-238	.0369	.0885J	PCI/L		0.6	RNS
SW SW034	07/10/91	SW80138WC	URANIUM-238	-.00387	.00776J	PCI/L	V	0.6	RNS
SW SW038	12/11/90	SW80080WC	URANIUM-238	.9700	.5600	PCI/L	A	0.6	RNS
SW SW068	06/13/90	SW00016WC	URANIUM-238	1.683	.296X	PCI/L		0.6	TB

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G10-a

Analytes Detected in Filtered Radiochemistry QC Blanks

MEDIA	FIELD TYPE*	ANALYTE	DETECTIONS/OBSERVATIONS
GW	FB	bicarbonate as caco3	1/1
GW	RNS	bicarbonate as caco3	1/1
SW	RNS	bicarbonate as caco3	8/8
GW	FB	carbonate as caco3	1/1
GW	RNS	carbonate as caco3	1/1
SW	RNS	carbonate as caco3	7/8
GW	FB	chloride	1/2
GW	RNS	chloride	1/2
SW	RNS	chloride	6/9
SW	RNS	fluoride	1/8
SS	RNS	nitrate/nitrite	1/1
GW	FB	nitrate/nitrite (historical code)	1/2
SW	RNS	nitrate/nitrite (historical code)	2/9
SS	RNS	oil & grease	1/1
SW	RNS	oil and grease	6/9
SW	RNS	orthophosphate	1/7
SW	RNS	ph	1/1
SW	RNS	phosphate	2/8
SW	RNS	phosphorus	1/1
SW	RNS	silica, dissolved	2/8
SW	RNS	sulfate	2/9
SW	RNS	total dissolved solids	4/9
SW	RNS	total suspended solids	3/9

*RNS = RINSATE BLANK; TB = TRIP BLANK; FB = FIELD BLANK

Table G10-b

Water Quality Parameter QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit		Val Code	CRQL*	Field Type
GW 6886	08/01/90	GW00186IT	BICARBONATE AS CACO3	2	MG/L			FB
GW 6886	08/01/90	GW00185IT	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW035	07/19/90	SW80017WC	BICARBONATE AS CACO3	180	MG/L			MS
SW SW029	09/12/90	SW80041WC	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW034	11/07/90	SW80064WC	BICARBONATE AS CACO3	10	MG/L			RNS
SW SW034	12/04/90	SW80072WC	BICARBONATE AS CACO3	130	MG/L			RNS
SW SW035	07/19/90	SW80015WC	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW035	10/03/90	SW80050WC	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW038	12/11/90	SW80080WC	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW068	12/10/90	SW80078WC	BICARBONATE AS CACO3	2	MG/L			RNS
SW SW069	08/20/90	SW80034WC	BICARBONATE AS CACO3	2	MG/L			RNS
GW 6886	08/01/90	GW00186IT	NITRATE/NITRITE (HISTORICAL	0.03	MG/L			FB
SS RA011	02/27/92	SS03023WS	Nitrate/Nitrite	.028	MG/L	JA		RNS
SW SW034	12/04/90	SW80072WC	NITRATE/NITRITE (HISTORICAL	0.5	MG/L			RNS
SW SW068	12/10/90	SW80078WC	NITRATE/NITRITE (HISTORICAL	0.02	MG/L			RNS
SW SW070	05/15/90	SW070W051590R	pH	5.2	PH			RNS
SS RA011	02/27/92	SS03023WS	Oil & Grease	.0021	MG/L	V		RNS
SW SW029	09/12/90	SW80041WC	OIL AND GREASE	0.3	MG/L			RNS
SW SW035	07/19/90	SW80015WC	OIL AND GREASE	0.8	MG/L			RNS
SW SW035	10/03/90	SW80050WC	OIL AND GREASE	0.3	MG/L			RNS
SW SW038	12/11/90	SW80080WC	OIL AND GREASE	0.3	MG/L			RNS
SW SW068	12/10/90	SW80078WC	OIL AND GREASE	0.4	MG/L			RNS
SW SW069	08/20/90	SW80034WC	OIL AND GREASE	1.6	MG/L			RNS
SW SW034	11/07/90	SW80064WC	TOTAL SUSPENDED SOLIDS	2	MG/L			RNS
SW SW034	12/04/90	SW80072WC	TOTAL SUSPENDED SOLIDS	30	MG/L			RNS
SW SW068	12/10/90	SW80078WC	TOTAL SUSPENDED SOLIDS	5	MG/L			RNS
SW SW035	07/19/90	SW80017WC	TOTAL DISSOLVED SOLIDS	340	MG/L			MS
SW SW034	11/07/90	SW80064WC	TOTAL DISSOLVED SOLIDS	186	MG/L			RNS
SW SW034	12/04/90	SW80072WC	TOTAL DISSOLVED SOLIDS	200	MG/L			RNS
SW SW068	12/10/90	SW80078WC	TOTAL DISSOLVED SOLIDS	850	MG/L			RNS
SW SW070	05/15/90	SW070W051590R	TOTAL DISSOLVED SOLIDS	5	MG/L			RNS
SW SW035	07/19/90	SW80017WC	SILICA, DISSOLVED	7.6	MG/L			MS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G10-b

Water Quality Parameter QC Sample Hits

Location	Date	Sample	Analyte, Compound, Isotope	Result, error, qualifier, unit		Val Code	CRQL*	Field Type
SW SW034	11/07/90	SW80064WC	SILICA, DISSOLVED	29	MG/L			RNS
SW SW034	12/04/90	SW80072WC	SILICA, DISSOLVED	9.4	MG/L			RNS
SW SW034	11/07/90	SW80064WC	PHOSPHATE	.02	MG/L			RNS
SW SW034	12/04/90	SW80072WC	PHOSPHATE	0.06	MG/L			RNS
SW SW035	07/19/90	SW80017WC	SULFATE	39	MG/L			MS
SW SW034	12/04/90	SW80072WC	SULFATE	20	MG/L			RNS
SW SW035	10/03/90	SW80050WC	SULFATE	5	MG/L			RNS
GW 6886	08/01/90	GW00186IT	CHLORIDE	1.6	MG/L			FB
GW 6886	08/01/90	GW00185IT	CHLORIDE	1.3	MG/L			RNS
SW SW035	07/19/90	SW80017WC	CHLORIDE	42	MG/L			MS
SW SW034	12/04/90	SW80072WC	CHLORIDE	18	MG/L			RNS
SW SW035	07/19/90	SW80015WC	CHLORIDE	0.3	MG/L			RNS
SW SW035	10/03/90	SW80050WC	CHLORIDE	0.5	MG/L			RNS
SW SW038	12/11/90	SW80080WC	CHLORIDE	0.7	MG/L			RNS
SW SW068	12/10/90	SW80078WC	CHLORIDE	0.5	MG/L			RNS
SW SW069	08/20/90	SW80034WC	CHLORIDE	0.8	MG/L			RNS
SW SW035	07/19/90	SW80017WC	FLUORIDE	0.6	MG/L			MS
SW SW034	12/04/90	SW80072WC	FLUORIDE	0.4	MG/L			RNS
GW 6886	08/01/90	GW00186IT	CARBONATE AS CACO3	0	MG/L			FB
GW 6886	08/01/90	GW00185IT	CARBONATE AS CACO3	0	MG/L			RNS
SW SW035	07/19/90	SW80017WC	CARBONATE AS CACO3	0	MG/L			MS
SW SW029	09/12/90	SW80041WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW034	12/04/90	SW80072WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW035	07/19/90	SW80015WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW035	10/03/90	SW80050WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW038	12/11/90	SW80080WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW068	12/10/90	SW80078WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW069	08/20/90	SW80034WC	CARBONATE AS CACO3	0	MG/L			RNS
SW SW034	11/07/90	SW80064WC	PHOSPHORUS	.01	MG/L			RNS
SW SW034	12/04/90	SW80072WC	ORTHOPHOSPHATE	0.01	MG/L			RNS

RNS - Rinsate Blank; TB - Trip Blank; FB - Field Blank

*CRQL - Contract Required Quantitation Limit - QUALITY ASSURANCE / QUALITY CONTROL PLAN - Environmental Restoration Program - Rocky Flats Plant, January 1989.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ETHYLBENZENE												
6986	08/20/91	GW01692IT, GW01695IT	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	ETHYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	ETHYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
STYRENE												
6986	08/20/91	GW01692IT, GW01695IT	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	STYRENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	STYRENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	STYRENE	0.10	U	UG/L		0.4		UG/L		120.00
6886	05/15/92	GW02825IT, GW02827IT	STYRENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
CIS-1,3-DICHLOROPROPENE												
6986	08/20/91	GW01692IT, GW01695IT	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	cis-1,3-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	cis-1,3-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
TRANS-1,3-DICHLOROPROPENE												
6986	08/20/91	GW01692IT, GW01695IT	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	trans-1,3-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	trans-1,3-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
N-PROPYLBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	n-PROPYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	n-PROPYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
N-BUTYLBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	n-BUTYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	n-BUTYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
P-CHLOROTOLUENE												
6886	02/26/92	GW02381IT, GW02383IT	p-CHLOROTOLUENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	p-CHLOROTOLUENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,4-DICHLOROBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	1,4-DICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,4-DICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,2-DIBROMOETHANE												
6886	02/26/92	GW02381IT, GW02383IT	1,2-DIBROMOETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2-DIBROMOETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHANE												
6986	08/20/91	GW01692IT, GW01695IT	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,2-DICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2-DICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
VINYL ACETATE												
6886	05/23/90	G68860523021005, G68860523021045	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/4					Percent achieving criteria*: 100.000				
4-METHYL-2-PENTANONE												
6986	08/20/91	GW01692IT, GW01695IT	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
6886	11/25/91	GW02058IT, GW02060IT	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/4					Percent achieving criteria*: 100.000				
M-XYLENE												
6886	02/26/92	GW02381IT, GW02383IT	m-XYLENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	m-XYLENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
BENZENE, 1,3,5-TRIMETHYL-												
6886	02/26/92	GW02381IT, GW02383IT	BENZENE, 1,3,5-TRIMETHYL-	0.10	U	UG/L		0.10	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	05/15/92	GW02825IT, GW02827IT	BENZENE, 1,3,5-TRIMETHYL-	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
BROMOBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	BROMOBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BROMOBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
TOLUENE												
6986	08/20/91	GW01692IT, GW01695IT	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	TOLUENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	TOLUENE	0.15	J	UG/L		0.20	U	UG/L		28.57
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
CHLOROBENZENE												
6986	08/20/91	GW01692IT, GW01695IT	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CHLOROBENZENE	0.1	U	UG/L		0.1	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	CHLOROBENZENE	0.1	U	UG/L		0.1	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,2,4-TRICHLOROBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	1,2,4-TRICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2,4-TRICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
DIBROMOCHLOROMETHANE												
6986	08/20/91	GW01692IT, GW01695IT	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	DIBROMOCHLOROMETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	DIBROMOCHLOROMETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
TETRACHLOROETHENE												
6986	08/20/91	GW01692IT, GW01695IT	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	11/25/91	GW02058IT, GW02060IT	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	TETRACHLOROETHENE	0.3		UG/L		0.8		UG/L		90.91
6886	05/15/92	GW02825IT, GW02827IT	TETRACHLOROETHENE	4.5		UG/L		0.10	U	UG/L		191.30
			Number achieving RPD criteria* per number of duplicate pairs: 5/7					Percent achieving criteria*: 71.429				
TOTAL XYLENES												
6986	08/20/91	GW01692IT, GW01695IT	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
SEC-BUTYLBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	sec-BUTYLBENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	sec-BUTYLBENZENE	0.69	B	UG/L		0.84	B	UG/L		19.61
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,3-DICHLOROPROPANE												
6886	02/26/92	GW02381IT, GW02383IT	1,3-DICHLOROPROPANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,3-DICHLOROPROPANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
CIS-1,2-DICHLOROETHENE												
6886	02/26/92	GW02381IT, GW02383IT	cis-1,2-DICHLOROETHENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	cis-1,2-DICHLOROETHENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
TRANS-1,2-DICHLOROETHENE												
6886	02/26/92	GW02381IT, GW02383IT	trans-1,2-DICHLOROETHENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	trans-1,2-DICHLOROETHENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHENE												
6986	08/20/91	GW01692IT, GW01695IT	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
1,3-DICHLOROBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	1,3-DICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,3-DICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
CARBON TETRACHLORIDE												
6986	08/20/91	GW01692IT, GW01695IT	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	05/23/90	G68860523021005, G68860523021045	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CARBON TETRACHLORIDE	0.10	J	UG/L		0.20	U	UG/L		66.67
6886	05/15/92	GW02825IT, GW02827IT	CARBON TETRACHLORIDE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
1,1-DICHLOROPROPENE												
6886	02/26/92	GW02381IT, GW02383IT	1,1-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1-DICHLOROPROPENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
2-HEXANONE												
6986	08/20/91	GW01692IT, GW01695IT	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
6886	11/25/91	GW02058IT, GW02060IT	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/4					Percent achieving criteria*: 100.000				
SEC-DICHLOROPROPANE												
6886	02/26/92	GW02381IT, GW02383IT	sec-DICHLOROPROPANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	sec-DICHLOROPROPANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,1,1,2-TETRACHLOROETHANE												
6886	02/26/92	GW02381IT, GW02383IT	1,1,1,2-TETRACHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1,1,2-TETRACHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
ACETONE												
6986	03/06/91	GW00925IT, GW00927IT	ACETONE	24	B	UG/L	JA	9	BJ	UG/L	JA	90.91
6986	08/20/91	GW01692IT, GW01695IT	ACETONE	10	U	UG/L	V	11	B	UG/L	JA	9.52
6886	05/23/90	G68860523021005, G68860523021045	ACETONE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	ACETONE	5	J	UG/L		5	J	UG/L		0.00
6886	11/25/91	GW02058IT, GW02060IT	ACETONE	2	BJ	UG/L	JA	10	U	UG/L	V	133.33
			Number achieving RPD criteria* per number of duplicate pairs: 3/5					Percent achieving criteria*: 60.000				
CHLOROFORM												
6986	08/20/91	GW01692IT, GW01695IT	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CHLOROFORM	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	CHLOROFORM	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
BENZENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	BENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	BENZENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	BENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BENZENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,1,1-TRICHLOROETHANE												
6986	08/20/91	GW01692IT, GW01695IT	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,1,1-TRICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1,1-TRICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
BROMOMETHANE												
6986	08/20/91	GW01692IT, GW01695IT	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	BROMOMETHANE	1.0	U	UG/L		1.0	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BROMOMETHANE	1.0	U	UG/L		1.0	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
CHLOROMETHANE												
6986	08/20/91	GW01692IT, GW01695IT	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CHLOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	CHLOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
DIBROMOMETHANE												
6886	02/26/92	GW02381IT, GW02383IT	DIBROMOMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	DIBROMOMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
BROMOCHLOROMETHANE												
6886	02/26/92	GW02381IT, GW02383IT	BROMOCHLOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BROMOCHLOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
CHLOROETHANE												

Note: [redacted]here both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
[redacted]ere one result is non-detect and one is detect, detection limit fo[redacted]-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CHLOROETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	CHLOROETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
VINYL CHLORIDE												
6986	08/20/91	GW01692IT, GW01695IT	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	VINYL CHLORIDE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	VINYL CHLORIDE	0.20	U	UG/L		0.28		UG/L		33.33
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
METHYLENE CHLORIDE												
6986	03/06/91	GW00925IT, GW00927IT	METHYLENE CHLORIDE	6		UG/L	V	5	B	UG/L	JA	18.18
6986	08/20/91	GW01692IT, GW01695IT	METHYLENE CHLORIDE	5	U	UG/L	V	4	BJ	UG/L	JA	22.22
6886	05/23/90	G68860523021005, G68860523021045	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	METHYLENE CHLORIDE	5	U	UG/L	V	5	B	UG/L	JA	0.00
6886	11/25/91	GW02058IT, GW02060IT	METHYLENE CHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	METHYLENE CHLORIDE	2.0	U	UG/L		2.0	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	METHYLENE CHLORIDE	2.0	U	UG/L		2.0	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/8					Percent achieving criteria*: 100.000				
CARBON DISULFIDE												
6986	03/06/91	GW00925IT, GW00927IT	CARBON DISULFIDE	5	U	UG/L	V	2	J	UG/L	A	85.71
6986	08/20/91	GW01692IT, GW01695IT	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/6					Percent achieving criteria*: 83.333				
BROMOFORM												
6986	08/20/91	GW01692IT, GW01695IT	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
6886	11/25/91	GW02058IT, GW02060IT	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	BROMOFORM	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BROMOFORM	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/6					Percent achieving criteria*: 100.000				

BROMODICHLOROMETHANE

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	BROMODICHLOROMETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	BROMODICHLOROMETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHANE												
6986	08/20/91	GW01692IT, GW01695IT	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,1-DICHLOROETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1-DICHLOROETHANE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHENE												
6986	08/20/91	GW01692IT, GW01695IT	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,1-DICHLOROETHENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1-DICHLOROETHENE	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
TRICHLOROFLUOROMETHANE												
6886	02/26/92	GW02381IT, GW02383IT	TRICHLOROFLUOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	TRICHLOROFLUOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
DICHLORODIFLUOROMETHANE												
6886	02/26/92	GW02381IT, GW02383IT	DICHLORODIFLUOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	DICHLORODIFLUOROMETHANE	0.50	U	UG/L		0.50	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
1,2-DICHLOROPROPANE												
6986	08/20/91	GW01692IT, GW01695IT	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,2-DICHLOROPROPANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2-DICHLOROPROPANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
2-BUTANONE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,1,2-TRICHLOROETHANE												
6986	08/20/91	GW01692IT, GW01695IT	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,1,2-TRICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1,2-TRICHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
TRICHLOROETHENE												
6986	08/20/91	GW01692IT, GW01695IT	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	TRICHLOROETHENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	TRICHLOROETHENE	0.11		UG/L		0.10	U	UG/L		9.52
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,1,2,2-TETRACHLOROETHANE												
6986	08/20/91	GW01692IT, GW01695IT	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	1,1,2,2-TETRACHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,1,2,2-TETRACHLOROETHANE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
1,2,3-TRICHLOROBENZENE												
6886	02/26/92	GW02381IT, GW02383IT	1,2,3-TRICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2,3-TRICHLOROBENZENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
HEXACHLOROBUTADIENE												
6886	02/26/92	GW02381IT, GW02383IT	HEXACHLOROBUTADIENE	0.10	U	UG/L		0.10	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	HEXACHLOROBUTADIENE	0.10	U	UG/L		0.10	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
NAPHTHALENE												
6886	02/26/92	GW02381IT, GW02383IT	NAPHTHALENE	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/15/92	GW02825IT, GW02827IT	NAPHTHALENE	0.20	U	UG/L		0.27		UG/L		29.79

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-a

Relative Percent Difference from the Mean
OU1 Groundwater Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
O-XYLENE										
6886	02/26/92	GW02381IT, GW02383IT	o-XYLENE	0.20	U	UG/L	0.20	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	o-XYLENE	0.20	U	UG/L	0.20	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
O-CHLOROTOLUENE										
6886	02/26/92	GW02381IT, GW02383IT	o-CHLOROTOLUENE	0.20	U	UG/L	0.20	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	o-CHLOROTOLUENE	0.20	U	UG/L	0.20	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
1,2-DICHLOROBENZENE										
6886	02/26/92	GW02381IT, GW02383IT	1,2-DICHLOROBENZENE	0.10	U	UG/L	0.10	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2-DICHLOROBENZENE	0.10	U	UG/L	0.10	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
BENZENE, 1,2,4-TRIMETHYL										
6886	02/26/92	GW02381IT, GW02383IT	BENZENE, 1,2,4-TRIMETHYL	0.10	U	UG/L	0.10	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	BENZENE, 1,2,4-TRIMETHYL	0.10	U	UG/L	0.10	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
PROPANE, 1,2-DIBROMO-3-CHLORO-										
6886	02/26/92	GW02381IT, GW02383IT	PROPANE, 1,2-DIBROMO-3-CHLORO	2.0	U	UG/L	2.0	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	PROPANE, 1,2-DIBROMO-3-CHLORO	2.0	U	UG/L	2.0	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
1,2,3-TRICHLOROPROPANE										
6886	02/26/92	GW02381IT, GW02383IT	1,2,3-TRICHLOROPROPANE	0.10	U	UG/L	0.10	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	1,2,3-TRICHLOROPROPANE	0.10	U	UG/L	0.10	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
TERT-BUTYLBENZENE										
6886	02/26/92	GW02381IT, GW02383IT	tert-BUTYLBENZENE	0.20	U	UG/L	0.20	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	tert-BUTYLBENZENE	0.20	U	UG/L	0.20	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
CUMENE										
6886	02/26/92	GW02381IT, GW02383IT	CUMENE	0.20	U	UG/L	0.20	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	CUMENE	0.20	U	UG/L	0.20	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
P-CYMENE										
6886	02/26/92	GW02381IT, GW02383IT	p-CYMENE	0.20	U	UG/L	0.20	U	UG/L	0.00
6886	05/15/92	GW02825IT, GW02827IT	p-CYMENE	0.20	U	UG/L	0.20	U	UG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ETHYLBENZENE												
SW029	09/12/90	SW00311WC, SW80042WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ETHYLBENZENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ETHYLBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	ETHYLBENZENE	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
STYRENE												
SW029	09/12/90	SW00311WC, SW80042WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	STYRENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	STYRENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	STYRENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	STYRENE	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
CIS-1,3-DICHLOROPROPENE												
SW029	09/12/90	SW00311WC, SW80042WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	UJ	UG/L	A	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	11/07/90	SW00506WC, SW80065WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CIS-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
TRANS-1,3-DICHLOROPROPENE												
SW029	09/12/90	SW00311WC, SW80042WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	TRANS-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,2-DICHLOROETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	10/03/90	SW00410WC, SW80051WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,2-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
VINYL ACETATE												
SW029	09/12/90	SW00311WC, SW80042WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	VINYL ACETATE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	VINYL ACETATE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
4-METHYL-2-PENTANONE												
SW029	09/12/90	SW00311WC, SW80042WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	4-METHYL-2-PENTANONE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	4-METHYL-2-PENTANONE	10	U	UG/L		10	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW068	03/19/91	SW00929WC, SW80095WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
TOLUENE												
SW029	09/12/90	SW00311WC, SW80042WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TOLUENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	TOLUENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	TOLUENE	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
CHLOROBENZENE												
SW029	09/12/90	SW00311WC, SW80042WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CHLOROBENZENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CHLOROBENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CHLOROBENZENE	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
2-CHLOROETHYL VINYL ETHER												
SW031	05/15/90	SW031W051590A, SW031W051590D	2-CHLOROETHYL VINYL ETHER	10	U	UG/L		10	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	2-CHLOROETHYL VINYL ETHER	10	U	UG/L		10	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
				Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000				
DIBROMOCHLOROMETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	DIBROMOCHLOROMETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	DIBROMOCHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
				Number achieving RPD criteria* per number of duplicate pairs: 18/18				Percent achieving criteria*: 100.000				
TETRACHLOROETHENE												
SW029	09/12/90	SW00311WC, SW80042WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TETRACHLOROETHENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	TETRACHLOROETHYLENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	TETRACHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	TETRACHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
				Number achieving RPD criteria* per number of duplicate pairs: 18/18				Percent achieving criteria*: 100.000				
TOTAL XYLENES												
SW029	09/12/90	SW00311WC, SW80042WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW033	08/07/91	SW01438WC, SW80145WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TOTAL XYLENES	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	XYLENES (M&P)	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	TOTAL XYLENES	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	TOTAL XYLENES	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHENE												
SW029	09/12/90	SW00311WC, SW80042WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,2-DICHLOROETHENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,2-DICHLOROETHENE (TOTAL)	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,2-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
CARBON TETRACHLORIDE												
SW029	09/12/90	SW00311WC, SW80042WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CARBON TETRACHLORIDE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	07/10/91	SW01333WC, SW80139WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CARBON TETRACHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
2-HEXANONE												
SW029	09/12/90	SW00311WC, SW80042WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	2-HEXANONE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	2-HEXANONE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
ACETONE												
SW029	09/12/90	SW00311WC, SW80042WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	ACETONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ACETONE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ACETONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	ACETONE	5	BJ	UG/L	JA	10	U	UG/L	V	66.67
SW034	04/04/91	SW01020WC, SW80107WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ACETONE	9	BJ	UG/L		8	BJ	UG/L		11.76
SW035	04/08/91	SW01025WC, SW80109WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ACETONE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	ACETONE	6	BJ	UG/L	JA	6	BJ	UG/L	JA	0.00
SW039	06/07/90	SW00058WC, SW00059WC	ACETONE	10	U	UG/L		4	JB	UG/L		85.71

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW068	12/10/90	SW00621WC, SW80079WC	ACETONE	3	BJ	UG/L		10	U	UG/L		107.69
SW068	03/19/91	SW00929WC, SW80095WC	ACETONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/17					Percent achieving criteria*: 82.353				
CHLOROFORM												
SW029	09/12/90	SW00311WC, SW80042WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW034900010	CHLOROFORM	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CHLOROFORM	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
BENZENE												
SW029	09/12/90	SW00311WC, SW80042WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW034900010	BENZENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	BENZENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BENZENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BENZENE	5	U	UG/L	JA	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,1,1-TRICHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	04/02/92	SW01875WC, SW80190WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,1,1-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
BROMOMETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	BROMOMETHANE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BROMOMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
CHLOROMETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CHLOROMETHANE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHLOROMETHANE			UG/L	V	10	U	UG/L	V	200.00
SW034	12/04/90	SW00610WC, SW80073WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CHLOROMETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/18					Percent achieving criteria*: 94.444				
CHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CHLOROETHANE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
VINYL CHLORIDE												
SW029	09/12/90	SW00311WC, SW80042WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	VINYL CHLORIDE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	05/14/91	SW01132WC, SW80123WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	VINYL CHLORIDE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
METHYLENE CHLORIDE												
SW029	09/12/90	SW00311WC, SW80042WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	METHYLENE CHLORIDE	8		UG/L	V	3	J	UG/L	A	90.91
SW031	05/15/90	SW031W051590A, SW031W051590D	METHYLENE CHLORIDE	3	JB	UG/L		3	JB	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	METHYLENE CHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	METHYLENE CHLORIDE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	METHYLENE CHLORIDE	1	BJ	UG/L	JA	4	BJ	UG/L	JA	120.00
SW034	12/04/90	SW00610WC, SW80073WC	METHYLENE CHLORIDE	2	BJ	UG/L	JA	1	BJ	UG/L	JA	66.67
SW034	04/04/91	SW01020WC, SW80107WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	METHYLENE CHLORIDE	1	J	UG/L		1	J	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	METHYLENE CHLORIDE	4	BJ	UG/L		4	BJ	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	METHYLENE CHLORIDE	1	BJ	UG/L	JA	2	BJ	UG/L	JA	66.67
SW039	06/07/90	SW00058WC, SW00059WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	METHYLENE CHLORIDE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	METHYLENE CHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/18					Percent achieving criteria*: 77.778				
CARBON DISULFIDE												
SW029	09/12/90	SW00311WC, SW80042WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CARBON DISULFIDE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CARBON DISULFIDE	5	U	UG/L		5	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				

BROMOFORM

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	09/12/90	SW00311WC, SW80042WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	BROMOFORM	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BROMOFORM	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
BROMODICHLOROMETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	BROMODICHLOROMETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BROMODICHLOROMETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,1-DICHLOROETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	12/04/90	SW00610WC, SW80073WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,1-DICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHENE												
SW029	09/12/90	SW00311WC, SW80042WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,1-DICHLOROETHENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,1-DICHLOROETHYLENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,1-DICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
1,2-DICHLOROPROPANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,2-DICHLOROPROPANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	04/08/91	SW01025WC, SW80109WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,2-DICHLOROPROPANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
		Number achieving RPD criteria* per number of duplicate pairs: 18/18						Percent achieving criteria*: 100.000				
2-BUTANONE												
SW029	09/12/90	SW00311WC, SW80042WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	2-BUTANONE	10	U	UG/L		10	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	2-BUTANONE	10	U	UG/L		10	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
		Number achieving RPD criteria* per number of duplicate pairs: 18/18						Percent achieving criteria*: 100.000				
1,1,2-TRICHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,1,2-TRICHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-b

Relative Percent Difference from the Mean
OU1 Surface Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
TRICHLOROETHENE												
SW029	09/12/90	SW00311WC, SW80042WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TRICHLOROETHENE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	TRICHLOROETHENE	13		UG/L		5	U	UG/L		88.89
SW035	05/14/91	SW01132WC, SW80123WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	TRICHLOROETHYLENE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	TRICHLOROETHENE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/18					Percent achieving criteria*: 94.444				
1,1,2,2-TETRACHLOROETHANE												
SW029	09/12/90	SW00311WC, SW80042WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW034	07/10/91	SW01333WC, SW80139WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
SW039	06/07/90	SW00058WC, SW00059WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L		5	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/18					Percent achieving criteria*: 100.000				
O-XYLENE												
SW031	05/15/90	SW031W051590A, SW031W051590D	o-XYLENE	5	U	UG/L		5	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	XYLENE (O)	5	U	UG/L		5	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Volatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ETHYLBENZENE												
SW046	08/08/91	SW01457WC, SW80147WC	ETHYLBENZENE	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
STYRENE												
SW046	08/08/91	SW01457WC, SW80147WC	STYRENE	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CIS-1,3-DICHLOROPROPENE												
SW046	08/08/91	SW01457WC, SW80147WC	cis-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TRANS-1,3-DICHLOROPROPENE												
SW046	08/08/91	SW01457WC, SW80147WC	trans-1,3-DICHLOROPROPENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,2-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VINYL ACETATE												
SW046	08/08/91	SW01457WC, SW80147WC	VINYL ACETATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-METHYL-2-PENTANONE												
SW046	08/08/91	SW01457WC, SW80147WC	4-METHYL-2-PENTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOLUENE												
SW046	08/08/91	SW01457WC, SW80147WC	TOLUENE	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROBENZENE												
SW046	08/08/91	SW01457WC, SW80147WC	CHLOROBENZENE	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIBROMOCHLOROMETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	DIBROMOCHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TETRACHLOROETHENE												
SW046	08/08/91	SW01457WC, SW80147WC	TETRACHLOROETHENE	6		UG/L	V	9		UG/L	V	40.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
TOTAL XYLENES												
SW046	08/08/91	SW01457WC, SW80147WC	TOTAL XYLENES	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW046	08/08/91	SW01457WC, SW80147WC	1,2-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CARBON TETRACHLORIDE												
SW046	08/08/91	SW01457WC, SW80147WC	CARBON TETRACHLORIDE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-HEXANONE												
SW046	08/08/91	SW01457WC, SW80147WC	2-HEXANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ACETONE												
			Number achieving RPD criteria* per number of duplicate pairs: 0/0					Percent achieving criteria*: **********				
CHLOROFORM												
SW046	08/08/91	SW01457WC, SW80147WC	CHLOROFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZENE												
SW046	08/08/91	SW01457WC, SW80147WC	BENZENE	5	U	UG/L	V	5	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1,1-TRICHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,1,1-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMOMETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	BROMOMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROMETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	CHLOROMETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	CHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VINYL CHLORIDE												
SW046	08/08/91	SW01457WC, SW80147WC	VINYL CHLORIDE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
METHYLENE CHLORIDE												
SW046	08/08/91	SW01457WC, SW80147WC	METHYLENE CHLORIDE	3	JB	UG/L	JA	3	JB	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CARBON DISULFIDE												
SW046	08/08/91	SW01457WC, SW80147WC	CARBON DISULFIDE	5	U	UG/L	V	5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMOFORM												
SW046	08/08/91	SW01457WC, SW80147WC	BROMOFORM	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMODICHLOROMETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	BROMODICHLOROMETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,1-DICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHENE												
SW046	08/08/91	SW01457WC, SW80147WC	1,1-DICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROPROPANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,2-DICHLOROPROPANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-BUTANONE												
SW046	08/08/91	SW01457WC, SW80147WC	2-BUTANONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1,2-TRICHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,1,2-TRICHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TRICHLOROETHENE												
SW046	08/08/91	SW01457WC, SW80147WC	TRICHLOROETHENE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1,2,2-TETRACHLOROETHANE												
SW046	08/08/91	SW01457WC, SW80147WC	1,1,2,2-TETRACHLOROETHANE	5	U	UG/L	V	5	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-d

Relative Percent Difference from the Mean
OU1 Sediment Volatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ETHYLBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	ETHYLBENZENE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
STYRENE												
SED028	03/18/91	SS00186WC, SS80093WC	STYRENE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CIS-1,3-DICHLOROPROPENE												
SED028	03/18/91	SS00186WC, SS80093WC	cis-1,3-DICHLOROPROPENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TRANS-1,3-DICHLOROPROPENE												
SED028	03/18/91	SS00186WC, SS80093WC	trans-1,3-DICHLOROPROPENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,2-DICHLOROETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VINYL ACETATE												
SED028	03/18/91	SS00186WC, SS80093WC	VINYL ACETATE	18	U	UG/KG	V	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-METHYL-2-PENTANONE												
SED028	03/18/91	SS00186WC, SS80093WC	4-METHYL-2-PENTANONE	18	U	UG/KG	JA	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOLUENE												
SED028	03/18/91	SS00186WC, SS80093WC	TOLUENE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	CHLOROBENZENE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIBROMOCHLOROMETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	DIBROMOCHLOROMETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TETRACHLOROETHENE												
SED028	03/18/91	SS00186WC, SS80093WC	TETRACHLOROETHENE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOTAL XYLENES												
SED028	03/18/91	SS00186WC, SS80093WC	TOTAL XYLENES	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

1,2-DICHLOROETHENE

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-d

Relative Percent Difference from the Mean
OU1 Sediment Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	1,2-DICHLOROETHENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CARBON TETRACHLORIDE												
SED028	03/18/91	SS00186WC, SS80093WC	CARBON TETRACHLORIDE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-HEXANONE												
SED028	03/18/91	SS00186WC, SS80093WC	2-HEXANONE	18	U	UG/KG	JA	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ACETONE												
SED028	03/18/91	SS00186WC, SS80093WC	ACETONE	66	B	UG/KG	JA	17	U	UG/KG	V	118.07
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
CHLOROFORM												
SED028	03/18/91	SS00186WC, SS80093WC	CHLOROFORM	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	BENZENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1,1-TRICHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,1,1-TRICHLOROETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMOMETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	BROMOMETHANE	18	U	UG/KG	V	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROMETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	CHLOROMETHANE	18	U	UG/KG	V	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	CHLOROETHANE	18	U	UG/KG	V	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VINYL CHLORIDE												
SED028	03/18/91	SS00186WC, SS80093WC	VINYL CHLORIDE	18	U	UG/KG	V	17	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
METHYLENE CHLORIDE												
SED028	03/18/91	SS00186WC, SS80093WC	METHYLENE CHLORIDE	13	B	UG/KG	JA	9	U	UG/KG	V	36.36
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CARBON DISULFIDE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-d

Relative Percent Difference from the Mean
OU1 Sediment Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	CARBON DISULFIDE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMOFORM												
SED028	03/18/91	SS00186WC, SS80093WC	BROMOFORM	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BROMODICHLOROMETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	BROMODICHLOROMETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,1-DICHLOROETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHENE												
SED028	03/18/91	SS00186WC, SS80093WC	1,1-DICHLOROETHENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROPROPANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,2-DICHLOROPROPANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-BUTANONE												
			Number achieving RPD criteria* per number of duplicate pairs: 0/0					Percent achieving criteria*: **********				
1,1,2-TRICHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,1,2-TRICHLOROETHANE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TRICHLOROETHENE												
SED028	03/18/91	SS00186WC, SS80093WC	TRICHLOROETHENE	9	U	UG/KG	V	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,1,2,2-TETRACHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	1,1,2,2-TETRACHLOROETHANE	9	U	UG/KG	JA	9	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ETHYLBENZENE												
B300190	02/02/90	B3001900006	ETHYLBENZENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	ETHYLBENZENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	ETHYLBENZENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	ETHYLBENZENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	ETHYLBENZENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	ETHYLBENZENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	ETHYLBENZENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	ETHYLBENZENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	ETHYLBENZENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	ETHYLBENZENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	ETHYLBENZENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	ETHYLBENZENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	ETHYLBENZENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	ETHYLBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	ETHYLBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	ETHYLBENZENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	ETHYLBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	ETHYLBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	ETHYLBENZENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
STYRENE												
B300190	02/02/90	B3001900006	STYRENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	STYRENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	STYRENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	STYRENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	STYRENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	STYRENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	STYRENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	STYRENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	STYRENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	STYRENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	STYRENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	STYRENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	STYRENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	STYRENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	STYRENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	STYRENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	STYRENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	STYRENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	STYRENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
CIS-1,3-DICHLOROPROPENE												
B300190	02/02/90	B3001900006	cis-1,3-DICHLOROPROPENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	cis-1,3-DICHLOROPROPENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	cis-1,3-DICHLOROPROPENE	29	U	UG/KG		59	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301190	02/22/90	B3011900002	cis-1,3-DICHLOROPROPENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	cis-1,3-DICHLOROPROPENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	cis-1,3-DICHLOROPROPENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	cis-1,3-DICHLOROPROPENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	cis-1,3-DICHLOROPROPENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	cis-1,3-DICHLOROPROPENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	cis-1,3-DICHLOROPROPENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	cis-1,3-DICHLOROPROPENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	cis-1,3-DICHLOROPROPENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	cis-1,3-DICHLOROPROPENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	cis-1,3-DICHLOROPROPENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
TRANS-1,3-DICHLOROPROPENE												
B300190	02/02/90	B3001900006	trans-1,3-DICHLOROPROPENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	trans-1,3-DICHLOROPROPENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	trans-1,3-DICHLOROPROPENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	trans-1,3-DICHLOROPROPENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	trans-1,3-DICHLOROPROPENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	trans-1,3-DICHLOROPROPENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	trans-1,3-DICHLOROPROPENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	trans-1,3-DICHLOROPROPENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	trans-1,3-DICHLOROPROPENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	trans-1,3-DICHLOROPROPENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	trans-1,3-DICHLOROPROPENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	trans-1,3-DICHLOROPROPENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	trans-1,3-DICHLOROPROPENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	trans-1,3-DICHLOROPROPENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHANE												
B300190	02/02/90	B3001900006	1,2-DICHLOROETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,2-DICHLOROETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,2-DICHLOROETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,2-DICHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,2-DICHLOROETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,2-DICHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,2-DICHLOROETHANE	29	U	UG/KG		23	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B302190	06/25/90	B3021900204	1,2-DICHLOROETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,2-DICHLOROETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,2-DICHLOROETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,2-DICHLOROETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,2-DICHLOROETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,2-DICHLOROETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,2-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,2-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,2-DICHLOROETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,2-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,2-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,2-DICHLOROETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
VINYL ACETATE												
B300190	02/02/90	B3001900006	VINYL ACETATE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	VINYL ACETATE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	VINYL ACETATE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	VINYL ACETATE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	VINYL ACETATE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	VINYL ACETATE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	VINYL ACETATE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	VINYL ACETATE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	VINYL ACETATE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	VINYL ACETATE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	VINYL ACETATE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	VINYL ACETATE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	VINYL ACETATE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	VINYL ACETATE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	VINYL ACETATE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	VINYL ACETATE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	VINYL ACETATE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	VINYL ACETATE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	VINYL ACETATE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
4-METHYL-2-PENTANONE												
B300190	02/02/90	B3001900006	4-METHYL-2-PENTANONE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	4-METHYL-2-PENTANONE	11	UJ	UG/KG	A	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	4-METHYL-2-PENTANONE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	4-METHYL-2-PENTANONE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	4-METHYL-2-PENTANONE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	4-METHYL-2-PENTANONE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	4-METHYL-2-PENTANONE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	4-METHYL-2-PENTANONE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	4-METHYL-2-PENTANONE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	4-METHYL-2-PENTANONE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	4-METHYL-2-PENTANONE	110	U	UG/KG		11	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303490	07/11/90	B3034900002	4-METHYL-2-PENTANONE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	4-METHYL-2-PENTANONE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	4-METHYL-2-PENTANONE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	4-METHYL-2-PENTANONE	12	U	UG/KG		42		UG/KG		111.11
B303590	07/12/90	B3035900709	4-METHYL-2-PENTANONE	14	U	UG/KG		23		UG/KG		48.65
B303590	07/12/90	B3035901213	4-METHYL-2-PENTANONE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	4-METHYL-2-PENTANONE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	4-METHYL-2-PENTANONE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/19					Percent achieving criteria*: 89.474				
TOLUENE												
B300190	02/02/90	B3001900006	TOLUENE	8	J	UG/KG	A	9		UG/KG	A	11.76
B300190	02/02/90	B3001900406	TOLUENE	52	J	UG/KG	A	52	J	UG/KG	A	0.00
B300790	02/09/90	B3007900002	TOLUENE	190		UG/KG		410		UG/KG		73.33
B301190	02/22/90	B3011900002	TOLUENE	350		UG/KG	E	231		UG/KG	E	40.96
B301490	02/26/90	B3014901012	TOLUENE	170		UG/KG	V	120		UG/KG	V	34.48
B301790	03/20/90	B3017900406	TOLUENE	15		UG/KG		23		UG/KG		42.11
B301990	03/21/90	B3019900608	TOLUENE	330		UG/KG		260		UG/KG		23.73
B302190	06/25/90	B3021900204	TOLUENE	53	B	UG/KG		39	B	UG/KG		30.43
B302290	06/26/90	B3022900810	TOLUENE	310	B	UG/KG		220	B	UG/KG		33.96
B303290	07/10/90	B3032900204	TOLUENE	190		UG/KG		23		UG/KG		156.81
B303390	07/11/90	B3033900002	TOLUENE	1200		UG/KG		170		UG/KG		150.36
B303490	07/11/90	B3034900002	TOLUENE	360		UG/KG		730		UG/KG		67.89
B303590	07/12/90	B3035900002	TOLUENE	260		UG/KG		270		UG/KG		3.77
B303590	07/12/90	B3035900204	TOLUENE	52		UG/KG		160	B	UG/KG		101.89
B303590	07/12/90	B3035900507	TOLUENE	43		UG/KG		43		UG/KG		0.00
B303590	07/12/90	B3035900709	TOLUENE	7		UG/KG		13		UG/KG		60.00
B303590	07/12/90	B3035901213	TOLUENE	58		UG/KG		110	B	UG/KG		61.90
B303590	07/12/90	B3035901618	TOLUENE	14		UG/KG		71	B	UG/KG		134.12
B303690	07/13/90	B3036900204	TOLUENE	350		UG/KG		110		UG/KG		104.35
			Number achieving RPD criteria* per number of duplicate pairs: 8/19					Percent achieving criteria*: 42.105				
CHLOROBENZENE												
B300190	02/02/90	B3001900006	CHLOROBENZENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CHLOROBENZENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CHLOROBENZENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CHLOROBENZENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	CHLOROBENZENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CHLOROBENZENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CHLOROBENZENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CHLOROBENZENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	CHLOROBENZENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CHLOROBENZENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CHLOROBENZENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CHLOROBENZENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CHLOROBENZENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CHLOROBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CHLOROBENZENE	6	U	UG/KG		6	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900709	CHLOROBENZENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	CHLOROBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CHLOROBENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	CHLOROBENZENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
2-CHLOROETHYL VINYL ETHER												
B300790	02/09/90	B3007900002	2-CHLOROETHYL VINYL ETHER	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	2-CHLOROETHYL VINYL ETHER	26	U	UG/KG		19	U	UG/KG		0.00
B301490	02/26/90	B3014901012	2-CHLOROETHYL VINYL ETHER	20	U	UG/KG		12	U	UG/KG		0.00
B301790	03/20/90	B3017900406	2-CHLOROETHYL VINYL ETHER	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	2-CHLOROETHYL VINYL ETHER	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	2-CHLOROETHYL VINYL ETHER	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	2-CHLOROETHYL VINYL ETHER	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	2-CHLOROETHYL VINYL ETHER	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	2-CHLOROETHYL VINYL ETHER	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	2-CHLOROETHYL VINYL ETHER	100	U	UG/KG		130	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
DIBROMOCHLOROMETHANE												
B300190	02/02/90	B3001900006	DIBROMOCHLOROMETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	DIBROMOCHLOROMETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	DIBROMOCHLOROMETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	DIBROMOCHLOROMETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	DIBROMOCHLOROMETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	DIBROMOCHLOROMETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	DIBROMOCHLOROMETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	DIBROMOCHLOROMETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	DIBROMOCHLOROMETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	DIBROMOCHLOROMETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	DIBROMOCHLOROMETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	DIBROMOCHLOROMETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	DIBROMOCHLOROMETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	DIBROMOCHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	DIBROMOCHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	DIBROMOCHLOROMETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	DIBROMOCHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	DIBROMOCHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	DIBROMOCHLOROMETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
TETRACHLOROETHENE												
B300190	02/02/90	B3001900006	TETRACHLOROETHENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	TETRACHLOROETHENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	TETRACHLOROETHENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	TETRACHLOROETHENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	TETRACHLOROETHENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	TETRACHLOROETHENE	12	U	UG/KG		12	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900608	TETRACHLOROETHENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	TETRACHLOROETHENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	TETRACHLOROETHENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	TETRACHLOROETHENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	TETRACHLOROETHENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	TETRACHLOROETHENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	TETRACHLOROETHENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	TETRACHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	TETRACHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	TETRACHLOROETHENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	TETRACHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	TETRACHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	TETRACHLOROETHENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
TOTAL XYLENES												
B300190	02/02/90	B3001900006	TOTAL XYLENES	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	TOTAL XYLENES	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	TOTAL XYLENES	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	TOTAL XYLENES	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	TOTAL XYLENES	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	TOTAL XYLENES	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	TOTAL XYLENES	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	TOTAL XYLENES	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	TOTAL XYLENES	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	TOTAL XYLENES	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	TOTAL XYLENES	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	TOTAL XYLENES	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	TOTAL XYLENES	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	TOTAL XYLENES	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	TOTAL XYLENES	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	TOTAL XYLENES	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	TOTAL XYLENES	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	TOTAL XYLENES	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	TOTAL XYLENES	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
1,2-DICHLOROETHENE												
B300190	02/02/90	B3001900006	1,2-DICHLOROETHENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,2-DICHLOROETHENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,2-DICHLOROETHENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,2-DICHLOROETHENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,2-DICHLOROETHENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,2-DICHLOROETHENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,2-DICHLOROETHENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,2-DICHLOROETHENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,2-DICHLOROETHENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,2-DICHLOROETHENE	5	U	UG/KG		10	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303390	07/11/90	B3033900002	1,2-DICHLOROETHENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,2-DICHLOROETHENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,2-DICHLOROETHENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,2-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,2-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,2-DICHLOROETHENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,2-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,2-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,2-DICHLOROETHENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
CARBON TETRACHLORIDE												
B300190	02/02/90	B3001900006	CARBON TETRACHLORIDE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CARBON TETRACHLORIDE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CARBON TETRACHLORIDE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CARBON TETRACHLORIDE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	CARBON TETRACHLORIDE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CARBON TETRACHLORIDE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CARBON TETRACHLORIDE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CARBON TETRACHLORIDE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	CARBON TETRACHLORIDE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CARBON TETRACHLORIDE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CARBON TETRACHLORIDE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CARBON TETRACHLORIDE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CARBON TETRACHLORIDE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CARBON TETRACHLORIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CARBON TETRACHLORIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	CARBON TETRACHLORIDE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	CARBON TETRACHLORIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CARBON TETRACHLORIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	CARBON TETRACHLORIDE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
2-HEXANONE												
B300190	02/02/90	B3001900006	2-HEXANONE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	2-HEXANONE	11	UJ	UG/KG	A	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	2-HEXANONE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	2-HEXANONE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	2-HEXANONE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	2-HEXANONE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	2-HEXANONE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	2-HEXANONE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	2-HEXANONE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	2-HEXANONE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	2-HEXANONE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	2-HEXANONE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	2-HEXANONE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	2-HEXANONE	11	U	UG/KG		11	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900507	2-HEXANONE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	2-HEXANONE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	2-HEXANONE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	2-HEXANONE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	2-HEXANONE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
ACETONE												
B300190	02/02/90	B3001900006	ACETONE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	ACETONE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	ACETONE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	ACETONE	37	UJ	UG/KG	A	30	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	ACETONE	20	UJ	UG/KG	A	12	UJ	UG/KG	A	0.00
B301790	03/20/90	B3017900406	ACETONE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	ACETONE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	ACETONE	5	J	UG/KG		11	U	UG/KG		75.00
B302290	06/26/90	B3022900810	ACETONE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	ACETONE	46	B	UG/KG		20	U	UG/KG		78.79
B303390	07/11/90	B3033900002	ACETONE	110	U	UG/KG		6	JB	UG/KG		179.31
B303490	07/11/90	B3034900002	ACETONE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	ACETONE	93		UG/KG		52	U	UG/KG		56.55
B303590	07/12/90	B3035900204	ACETONE	34		UG/KG		4	JB	UG/KG		157.89
B303590	07/12/90	B3035900507	ACETONE	41		UG/KG		13	B	UG/KG		103.70
B303590	07/12/90	B3035900709	ACETONE	53		UG/KG		9	JB	UG/KG		141.94
B303590	07/12/90	B3035901213	ACETONE	20	B	UG/KG		4	JB	UG/KG		133.33
B303590	07/12/90	B3035901618	ACETONE	57	B	UG/KG		6	JB	UG/KG		161.90
B303690	07/13/90	B3036900204	ACETONE	62	B	UG/KG		21	U	UG/KG		98.80
			Number achieving RPD criteria* per number of duplicate pairs: 9/19					Percent achieving criteria*: 47.368				
CHLOROFORM												
B300190	02/02/90	B3001900006	CHLOROFORM	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CHLOROFORM	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CHLOROFORM	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CHLOROFORM	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	CHLOROFORM	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CHLOROFORM	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CHLOROFORM	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CHLOROFORM	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	CHLOROFORM	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CHLOROFORM	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CHLOROFORM	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CHLOROFORM	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CHLOROFORM	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CHLOROFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CHLOROFORM	6	U	UG/KG		63		UG/KG		165.22
B303590	07/12/90	B3035900709	CHLOROFORM	7	U	UG/KG		23		UG/KG		106.67
B303590	07/12/90	B3035901213	CHLOROFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CHLOROFORM	6	U	UG/KG		6	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303690	07/13/90	B3036900204	CHLOROFORM	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/19					Percent achieving criteria*: 89.474				
BENZENE												
B300190	02/02/90	B3001900006	BENZENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	BENZENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	BENZENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	BENZENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	BENZENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	BENZENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	BENZENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	BENZENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	BENZENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	BENZENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	BENZENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	BENZENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	BENZENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	BENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	BENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	BENZENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	BENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	BENZENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	BENZENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
1,1,1-TRICHLOROETHANE												
B300190	02/02/90	B3001900006	1,1,1-TRICHLOROETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,1,1-TRICHLOROETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,1,1-TRICHLOROETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,1,1-TRICHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,1,1-TRICHLOROETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,1,1-TRICHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,1,1-TRICHLOROETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,1,1-TRICHLOROETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,1,1-TRICHLOROETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,1,1-TRICHLOROETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,1,1-TRICHLOROETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,1,1-TRICHLOROETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,1,1-TRICHLOROETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,1,1-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,1,1-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,1,1-TRICHLOROETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,1,1-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,1,1-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,1,1-TRICHLOROETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
BROMOMETHANE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	BROMOMETHANE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	BROMOMETHANE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	BROMOMETHANE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	BROMOMETHANE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	BROMOMETHANE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	BROMOMETHANE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	BROMOMETHANE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	BROMOMETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	BROMOMETHANE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	BROMOMETHANE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	BROMOMETHANE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	BROMOMETHANE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	BROMOMETHANE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	BROMOMETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	BROMOMETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	BROMOMETHANE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	BROMOMETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	BROMOMETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	BROMOMETHANE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
CHLOROMETHANE												
B300190	02/02/90	B3001900006	CHLOROMETHANE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CHLOROMETHANE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CHLOROMETHANE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CHLOROMETHANE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	CHLOROMETHANE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CHLOROMETHANE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CHLOROMETHANE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CHLOROMETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	CHLOROMETHANE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CHLOROMETHANE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CHLOROMETHANE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CHLOROMETHANE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CHLOROMETHANE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CHLOROMETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CHLOROMETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	CHLOROMETHANE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	CHLOROMETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CHLOROMETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	CHLOROMETHANE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
CHLOROETHANE												
B300190	02/02/90	B3001900006	CHLOROETHANE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CHLOROETHANE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CHLOROETHANE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CHLOROETHANE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301490	02/26/90	B3014901012	CHLOROETHANE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CHLOROETHANE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CHLOROETHANE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CHLOROETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	CHLOROETHANE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CHLOROETHANE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CHLOROETHANE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CHLOROETHANE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CHLOROETHANE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CHLOROETHANE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CHLOROETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	CHLOROETHANE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	CHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CHLOROETHANE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	CHLOROETHANE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
VINYL CHLORIDE												
B300190	02/02/90	B3001900006	VINYL CHLORIDE	12	UJ	UG/KG	A	12	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	VINYL CHLORIDE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	VINYL CHLORIDE	58	U	UG/KG		120	U	UG/KG		0.00
B301190	02/22/90	B3011900002	VINYL CHLORIDE	11	UJ	UG/KG	A	11	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	VINYL CHLORIDE	20	U	UG/KG	V	12	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	VINYL CHLORIDE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	VINYL CHLORIDE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	VINYL CHLORIDE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	VINYL CHLORIDE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	VINYL CHLORIDE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	VINYL CHLORIDE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	VINYL CHLORIDE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	VINYL CHLORIDE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	VINYL CHLORIDE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	VINYL CHLORIDE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	VINYL CHLORIDE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	VINYL CHLORIDE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	VINYL CHLORIDE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	VINYL CHLORIDE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
METHYLENE CHLORIDE												
B300190	02/02/90	B3001900006	METHYLENE CHLORIDE	6	UJ	UG/KG	A	9	B	UG/KG	A	40.00
B300190	02/02/90	B3001900406	METHYLENE CHLORIDE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	METHYLENE CHLORIDE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	METHYLENE CHLORIDE	13	UJ	UG/KG	A	17	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	METHYLENE CHLORIDE	13	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301790	03/20/90	B3017900406	METHYLENE CHLORIDE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	METHYLENE CHLORIDE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	METHYLENE CHLORIDE	1	JB	UG/KG		2	JB	UG/KG		66.67

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B302290	06/26/90	B3022900810	METHYLENE CHLORIDE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	METHYLENE CHLORIDE	3	JB	UG/KG		10	U	UG/KG		107.69
B303390	07/11/90	B3033900002	METHYLENE CHLORIDE	57	U	UG/KG		6	B	UG/KG		161.90
B303490	07/11/90	B3034900002	METHYLENE CHLORIDE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	METHYLENE CHLORIDE	20	B	UG/KG		26	U	UG/KG		26.09
B303590	07/12/90	B3035900204	METHYLENE CHLORIDE	26	B	UG/KG		5	JB	UG/KG		135.48
B303590	07/12/90	B3035900507	METHYLENE CHLORIDE	33	B	UG/KG		5	JB	UG/KG		147.37
B303590	07/12/90	B3035900709	METHYLENE CHLORIDE	39	B	UG/KG		5	JB	UG/KG		154.55
B303590	07/12/90	B3035901213	METHYLENE CHLORIDE	22	B	UG/KG		6	B	UG/KG		114.29
B303590	07/12/90	B3035901618	METHYLENE CHLORIDE	54	B	UG/KG		6	B	UG/KG		160.00
B303690	07/13/90	B3036900204	METHYLENE CHLORIDE	21	B	UG/KG		10	U	UG/KG		70.97
			Number achieving RPD criteria* per number of duplicate pairs: 10/19					Percent achieving criteria*: 52.632				
CARBON DISULFIDE												
B300190	02/02/90	B3001900006	CARBON DISULFIDE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	CARBON DISULFIDE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	CARBON DISULFIDE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	CARBON DISULFIDE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	CARBON DISULFIDE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	CARBON DISULFIDE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	CARBON DISULFIDE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	CARBON DISULFIDE	5	U	UG/KG		2	JB	UG/KG		85.71
B302290	06/26/90	B3022900810	CARBON DISULFIDE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	CARBON DISULFIDE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	CARBON DISULFIDE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	CARBON DISULFIDE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	CARBON DISULFIDE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	CARBON DISULFIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	CARBON DISULFIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	CARBON DISULFIDE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	CARBON DISULFIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	CARBON DISULFIDE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	CARBON DISULFIDE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 18/19					Percent achieving criteria*: 94.737				
BROMOFORM												
B300190	02/02/90	B3001900006	BROMOFORM	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	BROMOFORM	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	BROMOFORM	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	BROMOFORM	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	BROMOFORM	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	BROMOFORM	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	BROMOFORM	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	BROMOFORM	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	BROMOFORM	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	BROMOFORM	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	BROMOFORM	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	BROMOFORM	50	U	UG/KG		67	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900002	BROMOFORM	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	BROMOFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	BROMOFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	BROMOFORM	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	BROMOFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	BROMOFORM	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	BROMOFORM	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
BROMODICHLOROMETHANE												
B300190	02/02/90	B3001900006	BROMODICHLOROMETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	BROMODICHLOROMETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	BROMODICHLOROMETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	BROMODICHLOROMETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	BROMODICHLOROMETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	BROMODICHLOROMETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	BROMODICHLOROMETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	BROMODICHLOROMETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	BROMODICHLOROMETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	BROMODICHLOROMETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	BROMODICHLOROMETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	BROMODICHLOROMETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	BROMODICHLOROMETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	BROMODICHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	BROMODICHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	BROMODICHLOROMETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	BROMODICHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	BROMODICHLOROMETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	BROMODICHLOROMETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
1,1-DICHLOROETHANE												
B300190	02/02/90	B3001900006	1,1-DICHLOROETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,1-DICHLOROETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,1-DICHLOROETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,1-DICHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,1-DICHLOROETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,1-DICHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,1-DICHLOROETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,1-DICHLOROETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,1-DICHLOROETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,1-DICHLOROETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,1-DICHLOROETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,1-DICHLOROETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,1-DICHLOROETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,1-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,1-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,1-DICHLOROETHANE	7	U	UG/KG		6	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035901213	1,1-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,1-DICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,1-DICHLOROETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*:				100.000
1,1-DICHLOROETHENE												
B300190	02/02/90	B3001900006	1,1-DICHLOROETHENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,1-DICHLOROETHENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,1-DICHLOROETHENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,1-DICHLOROETHENE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,1-DICHLOROETHENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,1-DICHLOROETHENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,1-DICHLOROETHENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,1-DICHLOROETHENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,1-DICHLOROETHENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,1-DICHLOROETHENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,1-DICHLOROETHENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,1-DICHLOROETHENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,1-DICHLOROETHENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,1-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,1-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,1-DICHLOROETHENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,1-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,1-DICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,1-DICHLOROETHENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*:				100.000
1,2-DICHLOROPROPANE												
B300190	02/02/90	B3001900006	1,2-DICHLOROPROPANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,2-DICHLOROPROPANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,2-DICHLOROPROPANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,2-DICHLOROPROPANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,2-DICHLOROPROPANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,2-DICHLOROPROPANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,2-DICHLOROPROPANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,2-DICHLOROPROPANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,2-DICHLOROPROPANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,2-DICHLOROPROPANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,2-DICHLOROPROPANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,2-DICHLOROPROPANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,2-DICHLOROPROPANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,2-DICHLOROPROPANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,2-DICHLOROPROPANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,2-DICHLOROPROPANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,2-DICHLOROPROPANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,2-DICHLOROPROPANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,2-DICHLOROPROPANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*:				100.000
2-BUTANONE												

Note: [redacted]e both Field Sample and Field Duplicate results are non-detects, [redacted]efaults to zero; *Criteria: Soils - 40%, Waters - 30 %
[redacted]e one result is non-detect and one is detect, detection limit for [redacted]detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	2-BUTANONE	12	UJ	UG/KG	A	1	JB	UG/KG	A	169.23
B300190	02/02/90	B3001900406	2-BUTANONE	11	U	UG/KG	V	12	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	2-BUTANONE	58	U	UG/KG		120	U	UG/KG		0.00
B301790	03/20/90	B3017900406	2-BUTANONE	25	U	UG/KG		24	U	UG/KG		0.00
B301990	03/21/90	B3019900608	2-BUTANONE	58	U	UG/KG		45	U	UG/KG		0.00
B302190	06/25/90	B3021900204	2-BUTANONE	11	U	UG/KG		11	U	UG/KG		0.00
B302290	06/26/90	B3022900810	2-BUTANONE	26	U	UG/KG		25	U	UG/KG		0.00
B303290	07/10/90	B3032900204	2-BUTANONE	11	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900002	2-BUTANONE	110	U	UG/KG		11	U	UG/KG		0.00
B303490	07/11/90	B3034900002	2-BUTANONE	100	U	UG/KG		130	U	UG/KG		0.00
B303590	07/12/90	B3035900002	2-BUTANONE	11	U	UG/KG		52	U	UG/KG		0.00
B303590	07/12/90	B3035900204	2-BUTANONE	11	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900507	2-BUTANONE	12	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035900709	2-BUTANONE	14	U	UG/KG		11	U	UG/KG		0.00
B303590	07/12/90	B3035901213	2-BUTANONE	12	U	UG/KG		12	U	UG/KG		0.00
B303590	07/12/90	B3035901618	2-BUTANONE	12	U	UG/KG		11	U	UG/KG		0.00
B303690	07/13/90	B3036900204	2-BUTANONE	11	U	UG/KG		21	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
1,1,2-TRICHLOROETHANE												
B300190	02/02/90	B3001900006	1,1,2-TRICHLOROETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,1,2-TRICHLOROETHANE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,1,2-TRICHLOROETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,1,2-TRICHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,1,2-TRICHLOROETHANE	10	U	UG/KG		6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,1,2-TRICHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,1,2-TRICHLOROETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,1,2-TRICHLOROETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,1,2-TRICHLOROETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,1,2-TRICHLOROETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,1,2-TRICHLOROETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,1,2-TRICHLOROETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,1,2-TRICHLOROETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,1,2-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,1,2-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,1,2-TRICHLOROETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,1,2-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,1,2-TRICHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,1,2-TRICHLOROETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
TRICHLOROETHENE												
B300190	02/02/90	B3001900006	TRICHLOROETHENE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	TRICHLOROETHENE	6	U	UG/KG	V	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	TRICHLOROETHENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	TRICHLOROETHENE	6	U	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	TRICHLOROETHENE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	TRICHLOROETHENE	12	U	UG/KG		12	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G11-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Volatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900608	TRICHLOROETHENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	TRICHLOROETHENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	TRICHLOROETHENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	TRICHLOROETHENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	TRICHLOROETHENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	TRICHLOROETHENE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	TRICHLOROETHENE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	TRICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	TRICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	TRICHLOROETHENE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	TRICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	TRICHLOROETHENE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	TRICHLOROETHENE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
1,1,2,2-TETRACHLOROETHANE												
B300190	02/02/90	B3001900006	1,1,2,2-TETRACHLOROETHANE	6	UJ	UG/KG	A	6	U	UG/KG	A	0.00
B300190	02/02/90	B3001900406	1,1,2,2-TETRACHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900002	1,1,2,2-TETRACHLOROETHANE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	1,1,2,2-TETRACHLOROETHANE	6	UJ	UG/KG	A	6	UJ	UG/KG	A	0.00
B301490	02/26/90	B3014901012	1,1,2,2-TETRACHLOROETHANE	10	U	UG/KG	V	6	U	UG/KG	V	0.00
B301790	03/20/90	B3017900406	1,1,2,2-TETRACHLOROETHANE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	1,1,2,2-TETRACHLOROETHANE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	1,1,2,2-TETRACHLOROETHANE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	1,1,2,2-TETRACHLOROETHANE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	1,1,2,2-TETRACHLOROETHANE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	1,1,2,2-TETRACHLOROETHANE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	1,1,2,2-TETRACHLOROETHANE	50	U	UG/KG		67	U	UG/KG		0.00
B303590	07/12/90	B3035900002	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		26	U	UG/KG		0.00
B303590	07/12/90	B3035900204	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900507	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035900709	1,1,2,2-TETRACHLOROETHANE	7	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901213	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303590	07/12/90	B3035901618	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		6	U	UG/KG		0.00
B303690	07/13/90	B3036900204	1,1,2,2-TETRACHLOROETHANE	6	U	UG/KG		10	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 19/19					Percent achieving criteria*: 100.000				
O-XYLENE												
B300790	02/09/90	B3007900002	o-XYLENE	29	U	UG/KG		59	U	UG/KG		0.00
B301190	02/22/90	B3011900002	o-XYLENE	13	U	UG/KG		9	U	UG/KG		0.00
B301490	02/26/90	B3014901012	o-XYLENE	10	U	UG/KG		6	U	UG/KG		0.00
B301790	03/20/90	B3017900406	o-XYLENE	12	U	UG/KG		12	U	UG/KG		0.00
B301990	03/21/90	B3019900608	o-XYLENE	29	U	UG/KG		23	U	UG/KG		0.00
B302190	06/25/90	B3021900204	o-XYLENE	5	U	UG/KG		5	U	UG/KG		0.00
B302290	06/26/90	B3022900810	o-XYLENE	13	U	UG/KG		12	U	UG/KG		0.00
B303290	07/10/90	B3032900204	o-XYLENE	5	U	UG/KG		10	U	UG/KG		0.00
B303390	07/11/90	B3033900002	o-XYLENE	57	U	UG/KG		6	U	UG/KG		0.00
B303490	07/11/90	B3034900002	o-XYLENE	50	U	UG/KG		67	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
[redacted]re one result is non-detect and one is detect, detection limit for [redacted]detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
4-NITROANILINE												
SW034	04/04/91	SW01020WC, SW80107WC	4-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-NITROANILINE	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-NITROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	4-NITROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-NITROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-NITROPHENOL	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZYL ALCOHOL												
SW034	04/04/91	SW01020WC, SW80107WC	BENZYL ALCOHOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZYL ALCOHOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZYL ALCOHOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-BROMOPHENYL PHENYL ETHER												
SW034	04/04/91	SW01020WC, SW80107WC	4-BROMOPHENYL PHENYL ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-BROMOPHENYL PHENYL ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-BROMOPHENYL PHENYL ETHER	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DIMETHYLPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2,4-DIMETHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4-DIMETHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4-DIMETHYLPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-METHYLPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	4-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-METHYLPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,4-DICHLOROBENZENE												
SW034	04/04/91	SW01020WC, SW80107WC	1,4-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,4-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,4-DICHLOROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLOROANILINE												
SW034	04/04/91	SW01020WC, SW80107WC	4-CHLOROANILINE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-CHLOROANILINE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-CHLOROANILINE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-CHLOROISOPROPYL)ETHER												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	BIS(2-CHLOROISOPROPYL)ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BIS(2-CHLOROISOPROPYL)ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BIS(2-CHLOROISOPROPYL)ETHER	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	PHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	PHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	PHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHYL)ETHER												
SW034	04/04/91	SW01020WC, SW80107WC	BIS(2-CHLOROETHYL)ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BIS(2-CHLOROETHYL)ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BIS(2-CHLOROETHYL)ETHER	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHOXY)METHANE												
SW034	04/04/91	SW01020WC, SW80107WC	BIS(2-CHLOROETHOXY)METHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BIS(2-CHLOROETHOXY)METHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BIS(2-CHLOROETHOXY)METHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-ETHYLHEXYL)PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	BIS(2-ETHYLHEXYL)PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BIS(2-ETHYLHEXYL)PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BIS(2-ETHYLHEXYL)PHTHALATE	2	J	UG/L	A	3	J	UG/L	A	40.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
DI-N-OCTYL PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	DI-n-OCTYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DI-n-OCTYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DI-n-OCTYL PHTHALATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROBENZENE												
SW034	04/04/91	SW01020WC, SW80107WC	HEXACHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	HEXACHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	HEXACHLOROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ANTHRACENE												
SW034	04/04/91	SW01020WC, SW80107WC	ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ANTHRACENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				

1,2,4-TRICHLOROBENZENE

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	1,2,4-TRICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,2,4-TRICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,2,4-TRICHLOROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DICHLOROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2,4-DICHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4-DICHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4-DICHLOROPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DINITROTOLUENE												
SW034	04/04/91	SW01020WC, SW80107WC	2,4-DINITROTOLUENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4-DINITROTOLUENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4-DINITROTOLUENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PYRENE												
SW034	04/04/91	SW01020WC, SW80107WC	PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	PYRENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIMETHYL PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	DIMETHYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DIMETHYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DIMETHYL PHTHALATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIBENZOFURAN												
SW034	04/04/91	SW01020WC, SW80107WC	DIBENZOFURAN	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DIBENZOFURAN	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DIBENZOFURAN	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(GHI)PERYLENE												
SW034	04/04/91	SW01020WC, SW80107WC	BENZO(ghi)PERYLENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZO(ghi)PERYLENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZO(ghi)PERYLENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
INDENO(1,2,3-CD)PYRENE												
SW034	04/04/91	SW01020WC, SW80107WC	INDENO(1,2,3-cd)PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	INDENO(1,2,3-cd)PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	INDENO(1,2,3-cd)PYRENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(B)FLUORANTHENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	BENZO(b)FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZO(b)FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZO(b)FLUORANTHENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
FLUORANTHENE												
SW034	04/04/91	SW01020WC, SW80107WC	FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	FLUORANTHENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(K)FLUORANTHENE												
SW034	04/04/91	SW01020WC, SW80107WC	BENZO(k)FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZO(k)FLUORANTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZO(k)FLUORANTHENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ACENAPHTHYLENE												
SW034	04/04/91	SW01020WC, SW80107WC	ACENAPHTHYLENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ACENAPHTHYLENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ACENAPHTHYLENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
CHRYSENE												
SW034	04/04/91	SW01020WC, SW80107WC	CHRYSENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHRYSENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CHRYSENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(A)PYRENE												
SW034	04/04/91	SW01020WC, SW80107WC	BENZO(a)PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZO(a)PYRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZO(a)PYRENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DINITROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2,4-DINITROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4-DINITROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4-DINITROPHENOL	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIBENZO(A,H)ANTHRACENE												
SW034	04/04/91	SW01020WC, SW80107WC	DIBENZO(a,h)ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DIBENZO(a,h)ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DIBENZO(a,h)ANTHRACENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4,6-DINITRO-2-METHYLPHENOL												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	4,6-DINITRO-2-METHYLPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4,6-DINITRO-2-METHYLPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4,6-DINITRO-2-METHYLPHENOL	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,3-DICHLOROBENZENE												
SW034	04/04/91	SW01020WC, SW80107WC	1,3-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,3-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,3-DICHLOROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(A)ANTHRACENE												
SW034	04/04/91	SW01020WC, SW80107WC	BENZO(a)ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZO(a)ANTHRACENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZO(a)ANTHRACENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLORO-3-METHYLPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	4-CHLORO-3-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-CHLORO-3-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-CHLORO-3-METHYLPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,6-DINITROTOLUENE												
SW034	04/04/91	SW01020WC, SW80107WC	2,6-DINITROTOLUENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,6-DINITROTOLUENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,6-DINITROTOLUENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
N-NITROSO-DI-N-PROPYLAMINE												
SW034	04/04/91	SW01020WC, SW80107WC	N-NITROSO-DI-n-PROPYLAMINE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	N-NITROSO-DI-n-PROPYLAMINE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	N-NITROSO-DI-n-PROPYLAMINE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZOIC ACID												
SW034	04/04/91	SW01020WC, SW80107WC	BENZOIC ACID	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BENZOIC ACID	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BENZOIC ACID	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROETHANE												
SW034	04/04/91	SW01020WC, SW80107WC	HEXACHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	HEXACHLOROETHANE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	HEXACHLOROETHANE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLOROPHENYL PHENYL ETHER												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	4-CHLOROPHENYL PHENYL ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	4-CHLOROPHENYL PHENYL ETHER	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	4-CHLOROPHENYL PHENYL ETHER	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROCYCLOPENTADIENE												
SW034	04/04/91	SW01020WC, SW80107WC	HEXACHLOROCYCLOPENTADIENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	HEXACHLOROCYCLOPENTADIENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	HEXACHLOROCYCLOPENTADIENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ISOPHORONE												
SW034	04/04/91	SW01020WC, SW80107WC	ISOPHORONE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ISOPHORONE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ISOPHORONE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ACENAPHTHENE												
SW034	04/04/91	SW01020WC, SW80107WC	ACENAPHTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ACENAPHTHENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ACENAPHTHENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIETHYL PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	DIETHYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DIETHYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DIETHYL PHTHALATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DI-N-BUTYL PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	DI-n-BUTYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	DI-n-BUTYL PHTHALATE	2	J	UG/L		2	J	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	DI-n-BUTYL PHTHALATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PHENANTHRENE												
SW034	04/04/91	SW01020WC, SW80107WC	PHENANTHRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	PHENANTHRENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	PHENANTHRENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BUTYL BENZYL PHTHALATE												
SW034	04/04/91	SW01020WC, SW80107WC	BUTYL BENZYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BUTYL BENZYL PHTHALATE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BUTYL BENZYL PHTHALATE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
N-NITROSODIPHENYLAMINE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	N-NITROSODIPHENYLAMINE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	N-NITROSODIPHENYLAMINE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	N-NITROSODIPHENYLAMINE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
FLUORENE												
SW034	04/04/91	SW01020WC, SW80107WC	FLUORENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	FLUORENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	FLUORENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROBUTADIENE												
SW034	04/04/91	SW01020WC, SW80107WC	HEXACHLOROBUTADIENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	HEXACHLOROBUTADIENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	HEXACHLOROBUTADIENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PENTACHLOROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	PENTACHLOROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	PENTACHLOROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	PENTACHLOROPHENOL	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4,6-TRICHLOROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2,4,6-TRICHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4,6-TRICHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4,6-TRICHLOROPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-NITROANILINE												
SW034	04/04/91	SW01020WC, SW80107WC	2-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-NITROANILINE	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-NITROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2-NITROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-NITROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-NITROPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
NAPHTHALENE												
SW034	04/04/91	SW01020WC, SW80107WC	NAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	NAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	NAPHTHALENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-METHYLNAPHTHALENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	2-METHYLNAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-METHYLNAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-METHYLNAPHTHALENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-CHLORONAPHTHALENE												
SW034	04/04/91	SW01020WC, SW80107WC	2-CHLORONAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-CHLORONAPHTHALENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-CHLORONAPHTHALENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
3,3'-DICHLOROBENZIDINE												
SW034	04/04/91	SW01020WC, SW80107WC	3,3'-DICHLOROBENZIDINE	20	U	UG/L		20	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	3,3'-DICHLOROBENZIDINE	20	U	UG/L		20	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	3,3'-DICHLOROBENZIDINE	21	U	UG/L	V	21	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-METHYLPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-METHYLPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-METHYLPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,2-DICHLOROBENZENE												
SW034	04/04/91	SW01020WC, SW80107WC	1,2-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	1,2-DICHLOROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	1,2-DICHLOROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-CHLOROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2-CHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2-CHLOROPHENOL	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2-CHLOROPHENOL	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4,5-TRICHLOROPHENOL												
SW034	04/04/91	SW01020WC, SW80107WC	2,4,5-TRICHLOROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	2,4,5-TRICHLOROPHENOL	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	2,4,5-TRICHLOROPHENOL	52	U	UG/L	V	52	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
NITROBENZENE												
SW034	04/04/91	SW01020WC, SW80107WC	NITROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	NITROBENZENE	10	U	UG/L		10	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	NITROBENZENE	10	U	UG/L	V	10	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
3-NITROANILINE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-a

Relative Percent Difference from the Mean
OU1 Surface Water Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	3-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	3-NITROANILINE	50	U	UG/L		50	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	3-NITROANILINE	52	U	UG/L	V	52	U	UG/L	V	0.00

Number achieving RPD criteria* per number of duplicate pairs: 3/3 Percent achieving criteria*: 100.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
4-NITROANILINE												
SED028	03/18/91	SS00186WC, SS80093WC	4-NITROANILINE	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-NITROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	4-NITROPHENOL	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZYL ALCOHOL												
SED028	03/18/91	SS00186WC, SS80093WC	BENZYL ALCOHOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-BROMOPHENYL PHENYL ETHER												
SED028	03/18/91	SS00186WC, SS80093WC	4-BROMOPHENYL PHENYL ETHER	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4-DIMETHYLPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2,4-DIMETHYLPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-METHYLPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	4-METHYLPHENOL	110	J	UG/KG	A	570	U	UG/KG	V	135.29
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
1,4-DICHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	1,4-DICHLOROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-CHLOROANILINE												
SED028	03/18/91	SS00186WC, SS80093WC	4-CHLOROANILINE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BIS(2-CHLOROISOPROPYL)ETHER												
SED028	03/18/91	SS00186WC, SS80093WC	BIS(2-CHLOROISOPROPYL)ETHER	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	PHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHYL)ETHER												
SED028	03/18/91	SS00186WC, SS80093WC	BIS(2-CHLOROETHYL)ETHER	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHOXY)METHANE												
SED028	03/18/91	SS00186WC, SS80093WC	BIS(2-CHLOROETHOXY)METHANE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BIS(2-ETHYLHEXYL)PHTHALATE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	BIS(2-ETHYLHEXYL)PHTHALATE	130	J	UG/KG	A	67	J	UG/KG	A	63.96
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
DI-N-OCTYL PHTHALATE												
SED028	03/18/91	SS00186WC, SS80093WC	DI-n-OCTYL PHTHALATE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
HEXACHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	HEXACHLOROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ANTHRACENE												
SED028	03/18/91	SS00186WC, SS80093WC	ANTHRACENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2,4-TRICHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	1,2,4-TRICHLOROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4-DICHLOROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2,4-DICHLOROPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4-DINITROTOLUENE												
SED028	03/18/91	SS00186WC, SS80093WC	2,4-DINITROTOLUENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PYRENE												
SED028	03/18/91	SS00186WC, SS80093WC	PYRENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIMETHYL PHTHALATE												
SED028	03/18/91	SS00186WC, SS80093WC	DIMETHYL PHTHALATE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIBENZOFURAN												
SED028	03/18/91	SS00186WC, SS80093WC	DIBENZOFURAN	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZO(GHI)PERYLENE												
SED028	03/18/91	SS00186WC, SS80093WC	BENZO(ghi)PERYLENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
INDENO(1,2,3-CD)PYRENE												
SED028	03/18/91	SS00186WC, SS80093WC	INDENO(1,2,3-cd)PYRENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZO(B)FLUORANTHENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	BENZO(b)FLUORANTHENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
FLUORANTHENE												
SED028	03/18/91	SS00186WC, SS80093WC	FLUORANTHENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZO(K)FLUORANTHENE												
SED028	03/18/91	SS00186WC, SS80093WC	BENZO(k)FLUORANTHENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ACENAPHTHYLENE												
SED028	03/18/91	SS00186WC, SS80093WC	ACENAPHTHYLENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHRYSENE												
SED028	03/18/91	SS00186WC, SS80093WC	CHRYSENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZO(A)PYRENE												
SED028	03/18/91	SS00186WC, SS80093WC	BENZO(a)PYRENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4-DINITROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2,4-DINITROPHENOL	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIBENZO(A,H)ANTHRACENE												
SED028	03/18/91	SS00186WC, SS80093WC	DIBENZO(a,h)ANTHRACENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4,6-DINITRO-2-METHYLPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	4,6-DINITRO-2-METHYLPHENOL	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,3-DICHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	1,3-DICHLOROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BENZO(A)ANTHRACENE												
SED028	03/18/91	SS00186WC, SS80093WC	BENZO(a)ANTHRACENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-CHLORO-3-METHYLPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	4-CHLORO-3-METHYLPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,6-DINITROTOLUENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	2,6-DINITROTOLUENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
N-NITROSO-DI-N-PROPYLAMINE												
SED028	03/18/91	SS00186WC, SS80093WC	N-NITROSO-DI-n-PROPYLAMINE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
HEXACHLOROETHANE												
SED028	03/18/91	SS00186WC, SS80093WC	HEXACHLOROETHANE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4-CHLOROPHENYL PHENYL ETHER												
SED028	03/18/91	SS00186WC, SS80093WC	4-CHLOROPHENYL PHENYL ETHER	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
HEXACHLOROCYCLOPENTADIENE												
SED028	03/18/91	SS00186WC, SS80093WC	HEXACHLOROCYCLOPENTADIENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ISOPHORONE												
SED028	03/18/91	SS00186WC, SS80093WC	ISOPHORONE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ACENAPHTHENE												
SED028	03/18/91	SS00186WC, SS80093WC	ACENAPHTHENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIETHYL PHTHALATE												
SED028	03/18/91	SS00186WC, SS80093WC	DIETHYL PHTHALATE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DI-N-BUTYL PHTHALATE												
SED028	03/18/91	SS00186WC, SS80093WC	DI-n-BUTYL PHTHALATE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PHENANTHRENE												
SED028	03/18/91	SS00186WC, SS80093WC	PHENANTHRENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BUTYL BENZYL PHTHALATE												
SED028	03/18/91	SS00186WC, SS80093WC	BUTYL BENZYL PHTHALATE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
N-NITROSODIPHENYLAMINE												
SED028	03/18/91	SS00186WC, SS80093WC	N-NITROSODIPHENYLAMINE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
FLUORENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	FLUORENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
HEXACHLOROBUTADIENE												
SED028	03/18/91	SS00186WC, SS80093WC	HEXACHLOROBUTADIENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PENTACHLOROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	PENTACHLOROPHENOL	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4,6-TRICHLOROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2,4,6-TRICHLOROPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-NITROANILINE												
SED028	03/18/91	SS00186WC, SS80093WC	2-NITROANILINE	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-NITROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2-NITROPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
NAPHTHALENE												
SED028	03/18/91	SS00186WC, SS80093WC	NAPHTHALENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-METHYLNAPHTHALENE												
SED028	03/18/91	SS00186WC, SS80093WC	2-METHYLNAPHTHALENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-CHLORONAPHTHALENE												
SED028	03/18/91	SS00186WC, SS80093WC	2-CHLORONAPHTHALENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
3,3'-DICHLOROBENZIDINE												
SED028	03/18/91	SS00186WC, SS80093WC	3,3'-DICHLOROBENZIDINE	1200	U	UG/KG	V	1100	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-METHYLPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2-METHYLPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
1,2-DICHLOROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	1,2-DICHLOROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2-CHLOROPHENOL												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-b

Relative Percent Difference from the Mean
OU1 Sediment Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	2-CHLOROPHENOL	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
2,4,5-TRICHLOROPHENOL												
SED028	03/18/91	SS00186WC, SS80093WC	2,4,5-TRICHLOROPHENOL	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
NITROBENZENE												
SED028	03/18/91	SS00186WC, SS80093WC	NITROBENZENE	600	U	UG/KG	V	570	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
3-NITROANILINE												
SED028	03/18/91	SS00186WC, SS80093WC	3-NITROANILINE	3000	U	UG/KG	V	2900	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
4-NITROANILINE												
RA011	02/27/92	SS03021WS, SS03022WS	4-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-NITROANILINE	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-NITROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	4-NITROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-NITROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-NITROPHENOL	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZYL ALCOHOL												
RA011	02/27/92	SS03021WS, SS03022WS	BENZYL ALCOHOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BENZYL ALCOHOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZYL ALCOHOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-BROMOPHENYL PHENYL ETHER												
RA011	02/27/92	SS03021WS, SS03022WS	4-BROMOPHENYL PHENYL ETHER	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-BROMOPHENYL PHENYL ETHER	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-BROMOPHENYL PHENYL ETHER	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DIMETHYLPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2,4-DIMETHYLPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4-DIMETHYLPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4-DIMETHYLPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-METHYLPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	4-METHYLPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-METHYLPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-METHYLPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,4-DICHLOROBENZENE												
RA011	02/27/92	SS03021WS, SS03022WS	1,4-DICHLOROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	1,4-DICHLOROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	1,4-DICHLOROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLOROANILINE												
RA011	02/27/92	SS03021WS, SS03022WS	4-CHLOROANILINE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-CHLOROANILINE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-CHLOROANILINE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				

BIS(2-CHLOROISOPROPYL)ETHER

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	BIS(2-CHLOROISOPROPYL)ETHER	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BIS(2-CHLOROISOPROPYL)ETHER	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BIS(2-CHLOROISOPROPYL)ETHER	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	PHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	PHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	PHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHYL)ETHER												
RA011	02/27/92	SS03021WS, SS03022WS	BIS(2-CHLOROETHYL)ETHER	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BIS(2-CHLOROETHYL)ETHER	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BIS(2-CHLOROETHYL)ETHER	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-CHLOROETHOXY)METHANE												
RA011	02/27/92	SS03021WS, SS03022WS	BIS(2-CHLOROETHOXY)METHANE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BIS(2-CHLOROETHOXY)METHANE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BIS(2-CHLOROETHOXY)METHANE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BIS(2-ETHYLHEXYL)PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	BIS(2-ETHYLHEXYL)PHTHALATE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BIS(2-ETHYLHEXYL)PHTHALATE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BIS(2-ETHYLHEXYL)PHTHALATE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DI-N-OCTYL PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	DI-n-OCTYL PHTHALATE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	DI-n-OCTYL PHTHALATE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	DI-n-OCTYL PHTHALATE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROBENZENE												
RA011	02/27/92	SS03021WS, SS03022WS	HEXACHLOROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	HEXACHLOROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	HEXACHLOROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ANTHRACENE												
RA011	02/27/92	SS03021WS, SS03022WS	ANTHRACENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	ANTHRACENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	ANTHRACENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,2,4-TRICHLOROBENZENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	1,2,4-TRICHLOROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	1,2,4-TRICHLOROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	1,2,4-TRICHLOROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DICHLOROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2,4-DICHLOROPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4-DICHLOROPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4-DICHLOROPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DINITROTOLUENE												
RA011	02/27/92	SS03021WS, SS03022WS	2,4-DINITROTOLUENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4-DINITROTOLUENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4-DINITROTOLUENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PYRENE												
RA011	02/27/92	SS03021WS, SS03022WS	PYRENE	550		UG/KG	JA	580		UG/KG	JA	5.31
RA015	02/27/92	SS03030WS, SS03031WS	PYRENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	PYRENE	350	U	UG/KG	V	280	J	UG/KG	A	22.22
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIMETHYL PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	DIMETHYL PHTHALATE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	DIMETHYL PHTHALATE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	DIMETHYL PHTHALATE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIBENZOFURAN												
RA011	02/27/92	SS03021WS, SS03022WS	DIBENZOFURAN	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	DIBENZOFURAN	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	DIBENZOFURAN	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(GHI)PERYLENE												
RA011	02/27/92	SS03021WS, SS03022WS	BENZO(ghi)PERYLENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BENZO(ghi)PERYLENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZO(ghi)PERYLENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
INDENO(1,2,3-CD)PYRENE												
RA011	02/27/92	SS03021WS, SS03022WS	INDENO(1,2,3-cd)PYRENE	110	J	UG/KG	A	360	U	UG/KG	JA	106.38
RA015	02/27/92	SS03030WS, SS03031WS	INDENO(1,2,3-cd)PYRENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	INDENO(1,2,3-cd)PYRENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
BENZO(B)FLUORANTHENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	BENZO(b)FLUORANTHENE	110	J	UG/KG	A	120	J	UG/KG	A	8.70
RA015	02/27/92	SS03030WS, SS03031WS	BENZO(b)FLUORANTHENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZO(b)FLUORANTHENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
FLUORANTHENE												
RA011	02/27/92	SS03021WS, SS03022WS	FLUORANTHENE	600		UG/KG	JA	620		UG/KG	JA	3.28
RA015	02/27/92	SS03030WS, SS03031WS	FLUORANTHENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	FLUORANTHENE	270	J	UG/KG	A	370		UG/KG	V	31.25
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(K)FLUORANTHENE												
RA011	02/27/92	SS03021WS, SS03022WS	BENZO(k)FLUORANTHENE	120	J	UG/KG	A	110	J	UG/KG	A	8.70
RA015	02/27/92	SS03030WS, SS03031WS	BENZO(k)FLUORANTHENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZO(k)FLUORANTHENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ACENAPHTHYLENE												
RA011	02/27/92	SS03021WS, SS03022WS	ACENAPHTHYLENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	ACENAPHTHYLENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	ACENAPHTHYLENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
CHRYSENE												
RA011	02/27/92	SS03021WS, SS03022WS	CHRYSENE	210	J	UG/KG	A	220	J	UG/KG	A	4.65
RA015	02/27/92	SS03030WS, SS03031WS	CHRYSENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	CHRYSENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(A)PYRENE												
RA011	02/27/92	SS03021WS, SS03022WS	BENZO(a)PYRENE	160	J	UG/KG	A	160	J	UG/KG	A	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BENZO(a)PYRENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZO(a)PYRENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4-DINITROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2,4-DINITROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4-DINITROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4-DINITROPHENOL	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIBENZO(A,H)ANTHRACENE												
RA011	02/27/92	SS03021WS, SS03022WS	DIBENZO(a,h)ANTHRACENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	DIBENZO(a,h)ANTHRACENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	DIBENZO(a,h)ANTHRACENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4,6-DINITRO-2-METHYLPHENOL												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	4,6-DINITRO-2-METHYLPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4,6-DINITRO-2-METHYLPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4,6-DINITRO-2-METHYLPHENOL	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,3-DICHLOROBENZENE												
RA011	02/27/92	SS03021WS, SS03022WS	1,3-DICHLOROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	1,3-DICHLOROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	1,3-DICHLOROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZO(A)ANTHRACENE												
RA011	02/27/92	SS03021WS, SS03022WS	BENZO(a)ANTHRACENE	230	J	UG/KG	A	250	J	UG/KG	A	8.33
RA015	02/27/92	SS03030WS, SS03031WS	BENZO(a)ANTHRACENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZO(a)ANTHRACENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLORO-3-METHYLPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	4-CHLORO-3-METHYLPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-CHLORO-3-METHYLPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-CHLORO-3-METHYLPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,6-DINITROTOLUENE												
RA011	02/27/92	SS03021WS, SS03022WS	2,6-DINITROTOLUENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,6-DINITROTOLUENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,6-DINITROTOLUENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
N-NITROSO-DI-N-PROPYLAMINE												
RA011	02/27/92	SS03021WS, SS03022WS	N-NITROSO-DI-n-PROPYLAMINE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	N-NITROSO-DI-n-PROPYLAMINE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	N-NITROSO-DI-n-PROPYLAMINE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BENZOIC ACID												
RA011	02/27/92	SS03021WS, SS03022WS	BENZOIC ACID	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	BENZOIC ACID	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	BENZOIC ACID	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROETHANE												
RA011	02/27/92	SS03021WS, SS03022WS	HEXACHLOROETHANE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	HEXACHLOROETHANE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	HEXACHLOROETHANE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
4-CHLOROPHENYL PHENYL ETHER												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	4-CHLOROPHENYL PHENYL ETHER	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	4-CHLOROPHENYL PHENYL ETHER	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	4-CHLOROPHENYL PHENYL ETHER	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROCYCLOPENTADIENE												
RA011	02/27/92	SS03021WS, SS03022WS	HEXACHLOROCYCLOPENTADIENE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	HEXACHLOROCYCLOPENTADIENE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	HEXACHLOROCYCLOPENTADIENE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ISOPHORONE												
RA011	02/27/92	SS03021WS, SS03022WS	ISOPHORONE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	ISOPHORONE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	ISOPHORONE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ACENAPHTHENE												
RA011	02/27/92	SS03021WS, SS03022WS	ACENAPHTHENE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	ACENAPHTHENE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	ACENAPHTHENE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DIETHYL PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	DIETHYL PHTHALATE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	DIETHYL PHTHALATE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	DIETHYL PHTHALATE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
DI-N-BUTYL PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	DI-n-BUTYL PHTHALATE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	DI-n-BUTYL PHTHALATE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	DI-n-BUTYL PHTHALATE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PHENANTHRENE												
RA011	02/27/92	SS03021WS, SS03022WS	PHENANTHRENE	380	UG/KG	JA		420	UG/KG	JA		10.00
RA015	02/27/92	SS03030WS, SS03031WS	PHENANTHRENE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	PHENANTHRENE	130	J UG/KG	V		350	U UG/KG	V		91.67
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
BUTYL BENZYL PHTHALATE												
RA011	02/27/92	SS03021WS, SS03022WS	BUTYL BENZYL PHTHALATE	360	U UG/KG	JA		360	U UG/KG	JA		0.00
RA015	02/27/92	SS03030WS, SS03031WS	BUTYL BENZYL PHTHALATE	350	U UG/KG	JA		350	U UG/KG	JA		0.00
RA031	03/03/92	SS03050WS, SS03051WS	BUTYL BENZYL PHTHALATE	350	U UG/KG	V		350	U UG/KG	V		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
N-NITROSODIPHENYLAMINE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	N-NITROSODIPHENYLAMINE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	N-NITROSODIPHENYLAMINE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	N-NITROSODIPHENYLAMINE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
FLUORENE												
RA011	02/27/92	SS03021WS, SS03022WS	FLUORENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	FLUORENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	FLUORENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
HEXACHLOROBUTADIENE												
RA011	02/27/92	SS03021WS, SS03022WS	HEXACHLOROBUTADIENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	HEXACHLOROBUTADIENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	HEXACHLOROBUTADIENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PENTACHLOROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	PENTACHLOROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	PENTACHLOROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	PENTACHLOROPHENOL	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4,6-TRICHLOROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2,4,6-TRICHLOROPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4,6-TRICHLOROPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4,6-TRICHLOROPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-NITROANILINE												
RA011	02/27/92	SS03021WS, SS03022WS	2-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-NITROANILINE	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-NITROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2-NITROPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-NITROPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-NITROPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
NAPHTHALENE												
RA011	02/27/92	SS03021WS, SS03022WS	NAPHTHALENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	NAPHTHALENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	NAPHTHALENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-METHYLNAPHTHALENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	2-METHYLNAPHTHALENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-METHYLNAPHTHALENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-METHYLNAPHTHALENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-CHLORONAPHTHALENE												
RA011	02/27/92	SS03021WS, SS03022WS	2-CHLORONAPHTHALENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-CHLORONAPHTHALENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-CHLORONAPHTHALENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
3,3'-DICHLOROBENZIDINE												
RA011	02/27/92	SS03021WS, SS03022WS	3,3'-DICHLOROBENZIDINE	720	U	UG/KG	JA	720	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	3,3'-DICHLOROBENZIDINE	710	U	UG/KG	JA	700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	3,3'-DICHLOROBENZIDINE	690	U	UG/KG	V	690	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-METHYLPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2-METHYLPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-METHYLPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-METHYLPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
1,2-DICHLOROBENZENE												
RA011	02/27/92	SS03021WS, SS03022WS	1,2-DICHLOROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	1,2-DICHLOROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	1,2-DICHLOROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2-CHLOROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2-CHLOROPHENOL	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2-CHLOROPHENOL	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2-CHLOROPHENOL	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
2,4,5-TRICHLOROPHENOL												
RA011	02/27/92	SS03021WS, SS03022WS	2,4,5-TRICHLOROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	2,4,5-TRICHLOROPHENOL	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	2,4,5-TRICHLOROPHENOL	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
NITROBENZENE												
RA011	02/27/92	SS03021WS, SS03022WS	NITROBENZENE	360	U	UG/KG	JA	360	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	NITROBENZENE	350	U	UG/KG	JA	350	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	NITROBENZENE	350	U	UG/KG	V	350	U	UG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
3-NITROANILINE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-c

Relative Percent Difference from the Mean
OU1 Surface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	3-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	3-NITROANILINE	1700	U	UG/KG	JA	1700	U	UG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	3-NITROANILINE	1700	U	UG/KG	V	1700	U	UG/KG	V	0.00

Number achieving RPD criteria* per number of duplicate pairs: 3/3 Percent achieving criteria*: 100.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
4-NITROANILINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-NITROANILINE	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-NITROANILINE	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-NITROANILINE	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-NITROANILINE	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-NITROANILINE	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-NITROANILINE	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-NITROANILINE	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-NITROANILINE	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-NITROANILINE	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-NITROANILINE	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-NITROANILINE	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-NITROANILINE	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-NITROANILINE	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 33/33					Percent achieving criteria*: 100.000				
4-NITROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-NITROPHENOL	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-NITROPHENOL	95	J	UG/KG	A	3800	U	UG/KG	V	190.24
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-NITROPHENOL	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-NITROPHENOL	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-NITROPHENOL	180	J	UG/KG	A	2000	U	UG/KG	V	166.97

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-NITROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-NITROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-NITROPHENOL	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-NITROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-NITROPHENOL	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-NITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-NITROPHENOL	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-NITROPHENOL	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	4-NITROPHENOL	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-NITROPHENOL	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-NITROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-NITROPHENOL	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-NITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-NITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-NITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-NITROPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-NITROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-NITROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-NITROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-NITROPHENOL	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-NITROPHENOL	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-NITROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 35/37					Percent achieving criteria*: 94.595				
BENZYL ALCOHOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZYL ALCOHOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZYL ALCOHOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZYL ALCOHOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZYL ALCOHOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZYL ALCOHOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZYL ALCOHOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZYL ALCOHOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZYL ALCOHOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZYL ALCOHOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZYL ALCOHOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZYL ALCOHOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZYL ALCOHOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZYL ALCOHOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZYL ALCOHOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZYL ALCOHOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZYL ALCOHOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZYL ALCOHOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZYL ALCOHOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZYL ALCOHOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZYL ALCOHOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZYL ALCOHOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZYL ALCOHOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZYL ALCOHOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZYL ALCOHOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZYL ALCOHOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZYL ALCOHOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZYL ALCOHOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZYL ALCOHOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZYL ALCOHOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZYL ALCOHOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZYL ALCOHOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZYL ALCOHOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZYL ALCOHOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZYL ALCOHOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZYL ALCOHOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZYL ALCOHOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZYL ALCOHOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZYL ALCOHOL	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

4-BROMOPHENYL PHENYL ETHER												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-BROMOPHENYL PHENYL ETHER	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	4-BROMOPHENYL PHENYL ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-BROMOPHENYL PHENYL ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-BROMOPHENYL PHENYL ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-BROMOPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-BROMOPHENYL PHENYL ETHER	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-BROMOPHENYL PHENYL ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-BROMOPHENYL PHENYL ETHER	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-BROMOPHENYL PHENYL ETHER	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-BROMOPHENYL PHENYL ETHER	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-BROMOPHENYL PHENYL ETHER	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-BROMOPHENYL PHENYL ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-BROMOPHENYL PHENYL ETHER	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-BROMOPHENYL PHENYL ETHER	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-BROMOPHENYL PHENYL ETHER	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-BROMOPHENYL PHENYL ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-BROMOPHENYL PHENYL ETHER	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-BROMOPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-BROMOPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-BROMOPHENYL PHENYL ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-BROMOPHENYL PHENYL ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-BROMOPHENYL PHENYL ETHER	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-BROMOPHENYL PHENYL ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	4-BROMOPHENYL PHENYL ETHER	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-BROMOPHENYL PHENYL ETHER	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-BROMOPHENYL PHENYL ETHER	750	U	UG/KG	V	750	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-BROMOPHENYL PHENYL ETHER	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-BROMOPHENYL PHENYL ETHER	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-BROMOPHENYL PHENYL ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-BROMOPHENYL PHENYL ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-BROMOPHENYL PHENYL ETHER	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-BROMOPHENYL PHENYL ETHER	410	U	UG/KG	V	410		UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-BROMOPHENYL PHENYL ETHER	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-BROMOPHENYL PHENYL ETHER	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-BROMOPHENYL PHENYL ETHER	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-BROMOPHENYL PHENYL ETHER	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-BROMOPHENYL PHENYL ETHER	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-BROMOPHENYL PHENYL ETHER	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
2,4-DIMETHYLPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2,4-DIMETHYLPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4-DIMETHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4-DIMETHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4-DIMETHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4-DIMETHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,4-DIMETHYLPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,4-DIMETHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4-DIMETHYLPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4-DIMETHYLPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4-DIMETHYLPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4-DIMETHYLPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4-DIMETHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4-DIMETHYLPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4-DIMETHYLPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4-DIMETHYLPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4-DIMETHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4-DIMETHYLPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4-DIMETHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4-DIMETHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4-DIMETHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4-DIMETHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4-DIMETHYLPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4-DIMETHYLPHENOL	740	U	UG/KG	V	89	J	UG/KG	A	157.06
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4-DIMETHYLPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4-DIMETHYLPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4-DIMETHYLPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4-DIMETHYLPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4-DIMETHYLPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4-DIMETHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4-DIMETHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4-DIMETHYLPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4-DIMETHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4-DIMETHYLPHENOL	420	U	UG/KG		420	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900006	2,4-DIMETHYLPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,4-DIMETHYLPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,4-DIMETHYLPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4-DIMETHYLPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4-DIMETHYLPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 37/38					Percent achieving criteria*: 97.368				
4-METHYLPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-METHYLPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	4-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-METHYLPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-METHYLPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-METHYLPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-METHYLPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-METHYLPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-METHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-METHYLPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-METHYLPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-METHYLPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-METHYLPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-METHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-METHYLPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-METHYLPHENOL	740	U	UG/KG	V	140	J	UG/KG	A	136.36
36791	10/09/91	BH00600EBU1, BH00499EBU1	4-METHYLPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-METHYLPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-METHYLPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-METHYLPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-METHYLPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-METHYLPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-METHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-METHYLPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-METHYLPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-METHYLPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-METHYLPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-METHYLPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-METHYLPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 37/38					Percent achieving criteria*: 97.368				
1,4-DICHLOROBENZENE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30591	08/14/91	BH00049EBU1, BH00047EBU1	1,4-DICHLOROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	1,4-DICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	1,4-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	1,4-DICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	1,4-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	1,4-DICHLOROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	1,4-DICHLOROBENZENE	790	U	UG/KG	JA	790	U	UG/KG	JA	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	1,4-DICHLOROBENZENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	1,4-DICHLOROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	1,4-DICHLOROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	1,4-DICHLOROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	1,4-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	1,4-DICHLOROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	1,4-DICHLOROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	1,4-DICHLOROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	1,4-DICHLOROBENZENE	92	BJ	UG/KG	A	120	BJ	UG/KG	A	26.42
34291	09/16/91	BH00380EBU1, BH00379EBU1	1,4-DICHLOROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	1,4-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	1,4-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	1,4-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	1,4-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	1,4-DICHLOROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	1,4-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	1,4-DICHLOROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	1,4-DICHLOROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	1,4-DICHLOROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	1,4-DICHLOROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	1,4-DICHLOROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	1,4-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	1,4-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	1,4-DICHLOROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	1,4-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	1,4-DICHLOROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	1,4-DICHLOROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	1,4-DICHLOROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	1,4-DICHLOROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	1,4-DICHLOROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	1,4-DICHLOROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

4-CHLOROANILINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-CHLOROANILINE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-CHLOROANILINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-CHLOROANILINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-CHLOROANILINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-CHLOROANILINE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-CHLOROANILINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-CHLOROANILINE	750	U	UG/KG	V	740	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-CHLOROANILINE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-CHLOROANILINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-CHLOROANILINE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-CHLOROANILINE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-CHLOROANILINE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-CHLOROANILINE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-CHLOROANILINE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-CHLOROANILINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-CHLOROANILINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-CHLOROANILINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-CHLOROANILINE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-CHLOROANILINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-CHLOROANILINE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-CHLOROANILINE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-CHLOROANILINE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-CHLOROANILINE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-CHLOROANILINE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-CHLOROANILINE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-CHLOROANILINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-CHLOROANILINE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-CHLOROANILINE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-CHLOROANILINE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-CHLOROANILINE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-CHLOROANILINE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-CHLOROANILINE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria per number of duplicate pairs: 32/32 Percent achieving criteria*: 100.000*

BIS(2-CHLOROISOPROPYL)ETHER

30591	08/14/91	BH00049EBU1, BH00047EBU1	BIS(2-CHLOROISOPROPYL)ETHER	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BIS(2-CHLOROISOPROPYL)ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BIS(2-CHLOROISOPROPYL)ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BIS(2-CHLOROISOPROPYL)ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BIS(2-CHLOROISOPROPYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BIS(2-CHLOROISOPROPYL)ETHER	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BIS(2-CHLOROISOPROPYL)ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BIS(2-CHLOROISOPROPYL)ETHER	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BIS(2-CHLOROISOPROPYL)ETHER	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BIS(2-CHLOROISOPROPYL)ETHER	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BIS(2-CHLOROISOPROPYL)ETHER	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BIS(2-CHLOROISOPROPYL)ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BIS(2-CHLOROISOPROPYL)ETHER	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BIS(2-CHLOROISOPROPYL)ETHER	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BIS(2-CHLOROISOPROPYL)ETHER	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BIS(2-CHLOROISOPROPYL)ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BIS(2-CHLOROISOPROPYL)ETHER	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BIS(2-CHLOROISOPROPYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BIS(2-CHLOROISOPROPYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BIS(2-CHLOROISOPROPYL)ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36091	10/02/91	BH00459EBU1, BH00458EBU1	BIS(2-CHLOROISOPROPYL)ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BIS(2-CHLOROISOPROPYL)ETHER	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BIS(2-CHLOROISOPROPYL)ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BIS(2-CHLOROISOPROPYL)ETHER	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BIS(2-CHLOROISOPROPYL)ETHER	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BIS(2-CHLOROISOPROPYL)ETHER	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BIS(2-CHLOROISOPROPYL)ETHER	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BIS(2-CHLOROISOPROPYL)ETHER	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BIS(2-CHLOROISOPROPYL)ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BIS(2-CHLOROISOPROPYL)ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BIS(2-CHLOROISOPROPYL)ETHER	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BIS(2-CHLOROISOPROPYL)ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BIS(2-CHLOROISOPROPYL)ETHER	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BIS(2-CHLOROISOPROPYL)ETHER	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BIS(2-CHLOROISOPROPYL)ETHER	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BIS(2-CHLOROISOPROPYL)ETHER	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BIS(2-CHLOROISOPROPYL)ETHER	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BIS(2-CHLOROISOPROPYL)ETHER	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
PHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	PHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	PHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	PHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	PHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	PHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	PHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	PHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	PHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	PHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	PHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	PHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	PHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	PHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	PHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	PHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	PHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	PHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	PHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	PHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	PHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	PHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	PHENOL	730	U	UG/KG		760	U	UG/KG		0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	PHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	PHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	PHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	PHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	PHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37391	10/16/91	BH00651EBU1, BH00650EBU1	PHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	PHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	PHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	PHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	PHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	PHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	PHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	PHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	PHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	PHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	PHENOL	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

BIS(2-CHLOROETHYL)ETHER

30591	08/14/91	BH00049EBU1, BH00047EBU1	BIS(2-CHLOROETHYL)ETHER	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BIS(2-CHLOROETHYL)ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BIS(2-CHLOROETHYL)ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BIS(2-CHLOROETHYL)ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BIS(2-CHLOROETHYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BIS(2-CHLOROETHYL)ETHER	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BIS(2-CHLOROETHYL)ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BIS(2-CHLOROETHYL)ETHER	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BIS(2-CHLOROETHYL)ETHER	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BIS(2-CHLOROETHYL)ETHER	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BIS(2-CHLOROETHYL)ETHER	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BIS(2-CHLOROETHYL)ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BIS(2-CHLOROETHYL)ETHER	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BIS(2-CHLOROETHYL)ETHER	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BIS(2-CHLOROETHYL)ETHER	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BIS(2-CHLOROETHYL)ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BIS(2-CHLOROETHYL)ETHER	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BIS(2-CHLOROETHYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BIS(2-CHLOROETHYL)ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BIS(2-CHLOROETHYL)ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BIS(2-CHLOROETHYL)ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BIS(2-CHLOROETHYL)ETHER	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BIS(2-CHLOROETHYL)ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BIS(2-CHLOROETHYL)ETHER	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BIS(2-CHLOROETHYL)ETHER	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BIS(2-CHLOROETHYL)ETHER	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BIS(2-CHLOROETHYL)ETHER	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BIS(2-CHLOROETHYL)ETHER	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BIS(2-CHLOROETHYL)ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BIS(2-CHLOROETHYL)ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BIS(2-CHLOROETHYL)ETHER	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BIS(2-CHLOROETHYL)ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BIS(2-CHLOROETHYL)ETHER	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BIS(2-CHLOROETHYL)ETHER	410	U	UG/KG		410	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303390	07/11/90	B3033900008	BIS(2-CHLOROETHYL)ETHER	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BIS(2-CHLOROETHYL)ETHER	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BIS(2-CHLOROETHYL)ETHER	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BIS(2-CHLOROETHYL)ETHER	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*:				100.000
BIS(2-CHLOROETHOXY)METHANE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BIS(2-CHLOROETHOXY)METHANE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BIS(2-CHLOROETHOXY)METHANE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BIS(2-CHLOROETHOXY)METHANE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BIS(2-CHLOROETHOXY)METHANE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BIS(2-CHLOROETHOXY)METHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BIS(2-CHLOROETHOXY)METHANE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BIS(2-CHLOROETHOXY)METHANE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BIS(2-CHLOROETHOXY)METHANE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BIS(2-CHLOROETHOXY)METHANE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BIS(2-CHLOROETHOXY)METHANE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BIS(2-CHLOROETHOXY)METHANE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BIS(2-CHLOROETHOXY)METHANE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BIS(2-CHLOROETHOXY)METHANE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BIS(2-CHLOROETHOXY)METHANE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BIS(2-CHLOROETHOXY)METHANE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BIS(2-CHLOROETHOXY)METHANE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BIS(2-CHLOROETHOXY)METHANE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BIS(2-CHLOROETHOXY)METHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BIS(2-CHLOROETHOXY)METHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BIS(2-CHLOROETHOXY)METHANE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BIS(2-CHLOROETHOXY)METHANE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BIS(2-CHLOROETHOXY)METHANE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BIS(2-CHLOROETHOXY)METHANE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BIS(2-CHLOROETHOXY)METHANE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BIS(2-CHLOROETHOXY)METHANE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BIS(2-CHLOROETHOXY)METHANE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BIS(2-CHLOROETHOXY)METHANE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BIS(2-CHLOROETHOXY)METHANE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BIS(2-CHLOROETHOXY)METHANE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BIS(2-CHLOROETHOXY)METHANE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BIS(2-CHLOROETHOXY)METHANE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BIS(2-CHLOROETHOXY)METHANE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BIS(2-CHLOROETHOXY)METHANE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BIS(2-CHLOROETHOXY)METHANE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BIS(2-CHLOROETHOXY)METHANE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BIS(2-CHLOROETHOXY)METHANE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BIS(2-CHLOROETHOXY)METHANE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BIS(2-CHLOROETHOXY)METHANE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*:				100.000

BIS(2-ETHYLHEXYL)PHTHALATE

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30591	08/14/91	BH00049EBU1, BH00047EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	100	J	UG/KG	A	53	J	UG/KG	A	61.44
33591	09/11/91	BH00295EBU1, BH00294EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	790	U	UG/KG	V	180	J	UG/KG	A	125.77
34991	09/20/91	BH00414EBU1, BH00413EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BIS(2-ETHYLHEXYL)PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BIS(2-ETHYLHEXYL)PHTHALATE	380	U	UG/KG	V	61	J	UG/KG	A	144.67
B300790	02/09/90	B3007900004	BIS(2-ETHYLHEXYL)PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BIS(2-ETHYLHEXYL)PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BIS(2-ETHYLHEXYL)PHTHALATE	410	U	UG/KG	V	52	J	UG/KG	A	154.98
B301790	03/20/90	B3017900408	BIS(2-ETHYLHEXYL)PHTHALATE	61	J	UG/KG		42	J	UG/KG		36.89
B301990	03/21/90	B3019900006	BIS(2-ETHYLHEXYL)PHTHALATE	190	JB	UG/KG		87	JB	UG/KG		74.37
B303390	07/11/90	B3033900008	BIS(2-ETHYLHEXYL)PHTHALATE	93	JB	UG/KG		130	JB	UG/KG		33.18
B303490	07/12/90	B3034900008	BIS(2-ETHYLHEXYL)PHTHALATE	390	U	UG/KG		40	JB	UG/KG		162.79
B303590	07/12/90	B3035900009	BIS(2-ETHYLHEXYL)PHTHALATE	48	JB	UG/KG		47	JB	UG/KG		2.11
B303690	07/13/90	B3036900006	BIS(2-ETHYLHEXYL)PHTHALATE	44	JB	UG/KG		43	JB	UG/KG		2.30
			Number achieving RPD criteria* per number of duplicate pairs: 32/38					Percent achieving criteria*: 84.211				
DI-N-OCTYL PHTHALATE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	DI-n-OCTYL PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DI-n-OCTYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	DI-n-OCTYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	DI-n-OCTYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	DI-n-OCTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DI-n-OCTYL PHTHALATE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	DI-n-OCTYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31691	08/26/91	BH00113EBU1, BH00112EBU1	DI-n-OCTYL PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	DI-n-OCTYL PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DI-n-OCTYL PHTHALATE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	DI-n-OCTYL PHTHALATE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	DI-n-OCTYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DI-n-OCTYL PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DI-n-OCTYL PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	DI-n-OCTYL PHTHALATE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	DI-n-OCTYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	DI-n-OCTYL PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DI-n-OCTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DI-n-OCTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DI-n-OCTYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DI-n-OCTYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	DI-n-OCTYL PHTHALATE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	DI-n-OCTYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	DI-n-OCTYL PHTHALATE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DI-n-OCTYL PHTHALATE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DI-n-OCTYL PHTHALATE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	DI-n-OCTYL PHTHALATE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	DI-n-OCTYL PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DI-n-OCTYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DI-n-OCTYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DI-n-OCTYL PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DI-n-OCTYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DI-n-OCTYL PHTHALATE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DI-n-OCTYL PHTHALATE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DI-n-OCTYL PHTHALATE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DI-n-OCTYL PHTHALATE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DI-n-OCTYL PHTHALATE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DI-n-OCTYL PHTHALATE	45	J	UG/KG		360	U	UG/KG		155.56

Number achieving RPD criteria* per number of duplicate pairs: 37/38 Percent achieving criteria*: 97.368

HEXACHLOROBENZENE

30591	08/14/91	BH00049EBU1, BH00047EBU1	HEXACHLOROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	HEXACHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	HEXACHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	HEXACHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	HEXACHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	HEXACHLOROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	HEXACHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	HEXACHLOROBENZENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	HEXACHLOROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	HEXACHLOROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	HEXACHLOROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	HEXACHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	HEXACHLOROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	HEXACHLOROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33291	09/10/91	BH00289EBU1, BH00288EBU1	HEXACHLOROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	HEXACHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	HEXACHLOROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	HEXACHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	HEXACHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	HEXACHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	HEXACHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	HEXACHLOROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	HEXACHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	HEXACHLOROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	HEXACHLOROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	HEXACHLOROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	HEXACHLOROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	HEXACHLOROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	HEXACHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEXACHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEXACHLOROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEXACHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEXACHLOROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEXACHLOROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEXACHLOROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEXACHLOROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEXACHLOROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEXACHLOROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
ANTHRACENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ANTHRACENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	ANTHRACENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	ANTHRACENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	ANTHRACENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	ANTHRACENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	ANTHRACENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ANTHRACENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	ANTHRACENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	ANTHRACENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	ANTHRACENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	ANTHRACENE	150	J	UG/KG	A	760	U	UG/KG	V	134.07
36091	10/02/91	BH00459EBU1, BH00458EBU1	ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36391	10/04/91	BH00524EBU1, BH00523EBU1	ANTHRACENE	130	J	UG/KG		260	J	UG/KG	A	66.67
36591	10/07/91	BH00489EBU1, BH00488EBU1	ANTHRACENE	540	J	UG/KG	A	4800	D	UG/KG		159.55
36791	10/09/91	BH00600EBU1, BH00499EBU1	ANTHRACENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	ANTHRACENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	ANTHRACENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	ANTHRACENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	ANTHRACENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ANTHRACENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ANTHRACENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ANTHRACENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ANTHRACENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ANTHRACENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ANTHRACENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ANTHRACENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 35/38 Percent achieving criteria*: 92.105

1,2,4-TRICHLOROBENZENE

30591	08/14/91	BH00049EBU1, BH00047EBU1	1,2,4-TRICHLOROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	1,2,4-TRICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	1,2,4-TRICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	1,2,4-TRICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	1,2,4-TRICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	1,2,4-TRICHLOROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	1,2,4-TRICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	1,2,4-TRICHLOROBENZENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	1,2,4-TRICHLOROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	1,2,4-TRICHLOROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	1,2,4-TRICHLOROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	1,2,4-TRICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	1,2,4-TRICHLOROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	1,2,4-TRICHLOROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	1,2,4-TRICHLOROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	1,2,4-TRICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	1,2,4-TRICHLOROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	1,2,4-TRICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	1,2,4-TRICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	1,2,4-TRICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	1,2,4-TRICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	1,2,4-TRICHLOROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	1,2,4-TRICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	1,2,4-TRICHLOROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	1,2,4-TRICHLOROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	1,2,4-TRICHLOROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	1,2,4-TRICHLOROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	1,2,4-TRICHLOROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	1,2,4-TRICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	1,2,4-TRICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	1,2,4-TRICHLOROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	1,2,4-TRICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	1,2,4-TRICHLOROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	1,2,4-TRICHLOROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	1,2,4-TRICHLOROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	1,2,4-TRICHLOROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	1,2,4-TRICHLOROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	1,2,4-TRICHLOROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*:				100.000
2,4-DICHLOROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2,4-DICHLOROPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4-DICHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4-DICHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4-DICHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4-DICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,4-DICHLOROPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,4-DICHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4-DICHLOROPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4-DICHLOROPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4-DICHLOROPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4-DICHLOROPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4-DICHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4-DICHLOROPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4-DICHLOROPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4-DICHLOROPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4-DICHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4-DICHLOROPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4-DICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4-DICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4-DICHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4-DICHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4-DICHLOROPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4-DICHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4-DICHLOROPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4-DICHLOROPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4-DICHLOROPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4-DICHLOROPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4-DICHLOROPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4-DICHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4-DICHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4-DICHLOROPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4-DICHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4-DICHLOROPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2,4-DICHLOROPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,4-DICHLOROPHENOL	370	U	UG/KG		370	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303490	07/12/90	B3034900008	2,4-DICHLOROPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4-DICHLOROPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4-DICHLOROPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*:				100.000
2,4-DINITROTOLUENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2,4-DINITROTOLUENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4-DINITROTOLUENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4-DINITROTOLUENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4-DINITROTOLUENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,4-DINITROTOLUENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,4-DINITROTOLUENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4-DINITROTOLUENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4-DINITROTOLUENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4-DINITROTOLUENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4-DINITROTOLUENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4-DINITROTOLUENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4-DINITROTOLUENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4-DINITROTOLUENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4-DINITROTOLUENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4-DINITROTOLUENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4-DINITROTOLUENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4-DINITROTOLUENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4-DINITROTOLUENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4-DINITROTOLUENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4-DINITROTOLUENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4-DINITROTOLUENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4-DINITROTOLUENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4-DINITROTOLUENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4-DINITROTOLUENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4-DINITROTOLUENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4-DINITROTOLUENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4-DINITROTOLUENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4-DINITROTOLUENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4-DINITROTOLUENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4-DINITROTOLUENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2,4-DINITROTOLUENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,4-DINITROTOLUENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,4-DINITROTOLUENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4-DINITROTOLUENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4-DINITROTOLUENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*:				100.000
PYRENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	PYRENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30691	08/15/91	BH00056EBU1, BH00055EBU1	PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	PYRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	PYRENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	PYRENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	PYRENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	PYRENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	PYRENE	810	U	UG/KG	V	380	J	UG/KG	A	72.27
32491	09/04/91	BH00240EBU1, BH00239EBU1	PYRENE	150	J	UG/KG	A	81	J	UG/KG	A	59.74
32991	09/06/91	BH00265EBU1, BH00264EBU1	PYRENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	PYRENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	PYRENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	PYRENE	800	U	UG/KG		780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	PYRENE	790	U	UG/KG	V	160	J	UG/KG	A	132.63
34891	09/19/91	BH00405EBU1, BH00403EBU1	PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	PYRENE	110	J	UG/KG	A	760	U	UG/KG	V	149.43
36091	10/02/91	BH00459EBU1, BH00458EBU1	PYRENE	160	J	UG/KG	A	160	J	UG/KG	A	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	PYRENE	590	J	UG/KG		1400		UG/KG		81.41
36591	10/07/91	BH00489EBU1, BH00488EBU1	PYRENE	1600		UG/KG	V	13000	D	UG/KG	V	156.16
36791	10/09/91	BH00600EBU1, BH00499EBU1	PYRENE	120	J	UG/KG	A	790	U	UG/KG	V	147.25
36891	10/10/91	BH00610EBU1, BH00609EBU1	PYRENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	PYRENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	PYRENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	PYRENE	100	J	UG/KG	A	800	U	UG/KG	V	155.56
B300190	02/02/90	B3001900006	PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	PYRENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	PYRENE	410	U	UG/KG	V	410	U	UG/KG		0.00
B301790	03/20/90	B3017900408	PYRENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	PYRENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	PYRENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	PYRENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	PYRENE	380	U	UG/KG		51	J	UG/KG		152.67
B303690	07/13/90	B3036900006	PYRENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 29/38 Percent achieving criteria*: 76.316

DIMETHYL PHTHALATE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	DIMETHYL PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DIMETHYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	DIMETHYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	DIMETHYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	DIMETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DIMETHYL PHTHALATE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	DIMETHYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	DIMETHYL PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31891	08/27/91	BH00125EBU1, BH00122EBU1	DIMETHYL PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DIMETHYL PHTHALATE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	DIMETHYL PHTHALATE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	DIMETHYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DIMETHYL PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DIMETHYL PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	DIMETHYL PHTHALATE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	DIMETHYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	DIMETHYL PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DIMETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DIMETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DIMETHYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DIMETHYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	DIMETHYL PHTHALATE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	DIMETHYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	DIMETHYL PHTHALATE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DIMETHYL PHTHALATE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DIMETHYL PHTHALATE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	DIMETHYL PHTHALATE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	DIMETHYL PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DIMETHYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DIMETHYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DIMETHYL PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DIMETHYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DIMETHYL PHTHALATE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DIMETHYL PHTHALATE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DIMETHYL PHTHALATE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DIMETHYL PHTHALATE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DIMETHYL PHTHALATE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DIMETHYL PHTHALATE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

DIBENZOFURAN												
30591	08/14/91	BH00049EBU1, BH00047EBU1	DIBENZOFURAN	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DIBENZOFURAN	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	DIBENZOFURAN	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	DIBENZOFURAN	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	DIBENZOFURAN	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DIBENZOFURAN	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	DIBENZOFURAN	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	DIBENZOFURAN	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	DIBENZOFURAN	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DIBENZOFURAN	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	DIBENZOFURAN	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	DIBENZOFURAN	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DIBENZOFURAN	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DIBENZOFURAN	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	DIBENZOFURAN	400	U	UG/KG	V	400	U	UG/KG	JA	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33591	09/11/91	BH00295EBU1, BH00294EBU1	DIBENZOFURAN	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DIBENZOFURAN	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DIBENZOFURAN	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DIBENZOFURAN	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DIBENZOFURAN	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	DIBENZOFURAN	730	U	UG/KG		110	J	UG/KG	A	147.62
36591	10/07/91	BH00489EBU1, BH00488EBU1	DIBENZOFURAN	160	J	UG/KG	A	1700	D	UG/KG		165.59
36791	10/09/91	BH00600EBU1, BH00499EBU1	DIBENZOFURAN	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DIBENZOFURAN	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DIBENZOFURAN	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	DIBENZOFURAN	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	DIBENZOFURAN	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DIBENZOFURAN	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DIBENZOFURAN	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DIBENZOFURAN	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DIBENZOFURAN	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DIBENZOFURAN	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DIBENZOFURAN	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DIBENZOFURAN	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DIBENZOFURAN	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DIBENZOFURAN	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DIBENZOFURAN	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 35/37					Percent achieving criteria*: 94.595				
BENZO(GHI)PERYLENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZO(ghi)PERYLENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZO(ghi)PERYLENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZO(ghi)PERYLENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZO(ghi)PERYLENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZO(ghi)PERYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZO(ghi)PERYLENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZO(ghi)PERYLENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZO(ghi)PERYLENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZO(ghi)PERYLENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZO(ghi)PERYLENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZO(ghi)PERYLENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZO(ghi)PERYLENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZO(ghi)PERYLENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZO(ghi)PERYLENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZO(ghi)PERYLENE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZO(ghi)PERYLENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZO(ghi)PERYLENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZO(ghi)PERYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZO(ghi)PERYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZO(ghi)PERYLENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZO(ghi)PERYLENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZO(ghi)PERYLENE	180	J	UG/KG		760	U	UG/KG	V	123.40
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZO(ghi)PERYLENE	440	J	UG/KG	A	3300	D	UG/KG		152.94

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZO(ghi)PERYLENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZO(ghi)PERYLENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZO(ghi)PERYLENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZO(ghi)PERYLENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZO(ghi)PERYLENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZO(ghi)PERYLENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZO(ghi)PERYLENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZO(ghi)PERYLENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZO(ghi)PERYLENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZO(ghi)PERYLENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZO(ghi)PERYLENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZO(ghi)PERYLENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZO(ghi)PERYLENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZO(ghi)PERYLENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZO(ghi)PERYLENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria per number of duplicate pairs: 36/38*					*Percent achieving criteria*: 94.737*				
INDENO(1,2,3-CD)PYRENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	INDENO(1,2,3-cd)PYRENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	INDENO(1,2,3-cd)PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	INDENO(1,2,3-cd)PYRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	INDENO(1,2,3-cd)PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	INDENO(1,2,3-cd)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	INDENO(1,2,3-cd)PYRENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	INDENO(1,2,3-cd)PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	INDENO(1,2,3-cd)PYRENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	INDENO(1,2,3-cd)PYRENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	INDENO(1,2,3-cd)PYRENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	INDENO(1,2,3-cd)PYRENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	INDENO(1,2,3-cd)PYRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	INDENO(1,2,3-cd)PYRENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	INDENO(1,2,3-cd)PYRENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	INDENO(1,2,3-cd)PYRENE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	INDENO(1,2,3-cd)PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	INDENO(1,2,3-cd)PYRENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	INDENO(1,2,3-cd)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	INDENO(1,2,3-cd)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	INDENO(1,2,3-cd)PYRENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	INDENO(1,2,3-cd)PYRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	INDENO(1,2,3-cd)PYRENE	170	J	UG/KG		760	U	UG/KG	V	126.88
36591	10/07/91	BH00489EBU1, BH00488EBU1	INDENO(1,2,3-cd)PYRENE	400	J	UG/KG	A	3500	D	UG/KG		158.97
36791	10/09/91	BH00600EBU1, BH00499EBU1	INDENO(1,2,3-cd)PYRENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	INDENO(1,2,3-cd)PYRENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	INDENO(1,2,3-cd)PYRENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	INDENO(1,2,3-cd)PYRENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	INDENO(1,2,3-cd)PYRENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	INDENO(1,2,3-cd)PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	INDENO(1,2,3-cd)PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301190	02/22/90	B3011900004	INDENO(1,2,3-cd)PYRENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	INDENO(1,2,3-cd)PYRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	INDENO(1,2,3-cd)PYRENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	INDENO(1,2,3-cd)PYRENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	INDENO(1,2,3-cd)PYRENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	INDENO(1,2,3-cd)PYRENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	INDENO(1,2,3-cd)PYRENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	INDENO(1,2,3-cd)PYRENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 36/38					Percent achieving criteria*: 94.737				
BENZO(B)FLUORANTHENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZO(b)FLUORANTHENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZO(b)FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZO(b)FLUORANTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZO(b)FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZO(b)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZO(b)FLUORANTHENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZO(b)FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZO(b)FLUORANTHENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZO(b)FLUORANTHENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZO(b)FLUORANTHENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZO(b)FLUORANTHENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZO(b)FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZO(b)FLUORANTHENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZO(b)FLUORANTHENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZO(b)FLUORANTHENE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZO(b)FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZO(b)FLUORANTHENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZO(b)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZO(b)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZO(b)FLUORANTHENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZO(b)FLUORANTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZO(b)FLUORANTHENE	240	J	UG/KG		390	J	UG/KG	A	47.62
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZO(b)FLUORANTHENE	500	J	UG/KG	A	5200	D	UG/KG		164.91
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZO(b)FLUORANTHENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZO(b)FLUORANTHENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZO(b)FLUORANTHENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZO(b)FLUORANTHENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZO(b)FLUORANTHENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZO(b)FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZO(b)FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZO(b)FLUORANTHENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZO(b)FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZO(b)FLUORANTHENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZO(b)FLUORANTHENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZO(b)FLUORANTHENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZO(b)FLUORANTHENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZO(b)FLUORANTHENE	380	U	UG/KG		370	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303690	07/13/90	B3036900006	BENZO(b)FLUORANTHENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 36/38					Percent achieving criteria*: 94.737				
FLUORANTHENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	FLUORANTHENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	FLUORANTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	FLUORANTHENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	FLUORANTHENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	FLUORANTHENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	FLUORANTHENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	FLUORANTHENE	810	U	UG/KG	V	440	J	UG/KG	A	59.20
32491	09/04/91	BH00240EBU1, BH00239EBU1	FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	FLUORANTHENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	FLUORANTHENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	FLUORANTHENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	FLUORANTHENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	FLUORANTHENE	790	U	UG/KG	V	160	J	UG/KG	A	132.63
34891	09/19/91	BH00405EBU1, BH00403EBU1	FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	FLUORANTHENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	FLUORANTHENE	150	J	UG/KG	A	160	J	UG/KG	A	6.45
36391	10/04/91	BH00524EBU1, BH00523EBU1	FLUORANTHENE	840		UG/KG		1600		UG/KG	V	62.30
36591	10/07/91	BH00489EBU1, BH00488EBU1	FLUORANTHENE	2000		UG/KG	V	14000	D	UG/KG	V	150.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	FLUORANTHENE	120	J	UG/KG	A	790	U	UG/KG	V	147.25
36891	10/10/91	BH00610EBU1, BH00609EBU1	FLUORANTHENE	87	J	UG/KG	A	750	U	UG/KG	V	158.42
37091	10/14/91	BH00625EBU1, BH00624EBU1	FLUORANTHENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	FLUORANTHENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	FLUORANTHENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	FLUORANTHENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	FLUORANTHENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	FLUORANTHENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	FLUORANTHENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	FLUORANTHENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	FLUORANTHENE	380	U	UG/KG		47	J	UG/KG		155.97
B303690	07/13/90	B3036900006	FLUORANTHENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 31/38					Percent achieving criteria*: 81.579				
BENZO(K)FLUORANTHENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZO(k)FLUORANTHENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZO(k)FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZO(k)FLUORANTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZO(k)FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZO(k)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZO(k)FLUORANTHENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZO(k)FLUORANTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZO(k)FLUORANTHENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZO(k)FLUORANTHENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZO(k)FLUORANTHENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZO(k)FLUORANTHENE	810	U	UG/KG	V	110	J	UG/KG	A	152.17
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZO(k)FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZO(k)FLUORANTHENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZO(k)FLUORANTHENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZO(k)FLUORANTHENE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZO(k)FLUORANTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZO(k)FLUORANTHENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZO(k)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZO(k)FLUORANTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZO(k)FLUORANTHENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZO(k)FLUORANTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZO(k)FLUORANTHENE	200	J	UG/KG		460	J	UG/KG	A	78.79
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZO(k)FLUORANTHENE	590	J	UG/KG	A	6100	D	UG/KG		164.72
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZO(k)FLUORANTHENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZO(k)FLUORANTHENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZO(k)FLUORANTHENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZO(k)FLUORANTHENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZO(k)FLUORANTHENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZO(k)FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZO(k)FLUORANTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZO(k)FLUORANTHENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZO(k)FLUORANTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZO(k)FLUORANTHENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZO(k)FLUORANTHENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZO(k)FLUORANTHENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZO(k)FLUORANTHENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZO(k)FLUORANTHENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZO(k)FLUORANTHENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 35/38 Percent achieving criteria*: 92.105

ACENAPHTHYLENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ACENAPHTHYLENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	ACENAPHTHYLENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	ACENAPHTHYLENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	ACENAPHTHYLENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	ACENAPHTHYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	ACENAPHTHYLENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	ACENAPHTHYLENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	ACENAPHTHYLENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	ACENAPHTHYLENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	ACENAPHTHYLENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32191	08/30/91	BH00221EBU1, BH00219EBU1	ACENAPHTHYLENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	ACENAPHTHYLENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ACENAPHTHYLENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	ACENAPHTHYLENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	ACENAPHTHYLENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	ACENAPHTHYLENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	ACENAPHTHYLENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	ACENAPHTHYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	ACENAPHTHYLENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	ACENAPHTHYLENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	ACENAPHTHYLENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	ACENAPHTHYLENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	ACENAPHTHYLENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	ACENAPHTHYLENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	ACENAPHTHYLENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	ACENAPHTHYLENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	ACENAPHTHYLENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	ACENAPHTHYLENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	ACENAPHTHYLENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ACENAPHTHYLENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ACENAPHTHYLENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ACENAPHTHYLENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ACENAPHTHYLENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ACENAPHTHYLENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ACENAPHTHYLENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ACENAPHTHYLENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ACENAPHTHYLENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ACENAPHTHYLENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

CHRYSENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	CHRYSENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	CHRYSENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	CHRYSENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	CHRYSENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	CHRYSENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	CHRYSENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	CHRYSENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	CHRYSENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	CHRYSENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	CHRYSENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	CHRYSENE	810	U	UG/KG	V	180	J	UG/KG	A	127.27
32491	09/04/91	BH00240EBU1, BH00239EBU1	CHRYSENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	CHRYSENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	CHRYSENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	CHRYSENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	CHRYSENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	CHRYSENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34691	09/18/91	BH00392EBU1, BH00391EBU1	CHRYSENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	CHRYSENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	CHRYSENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	CHRYSENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	CHRYSENE	320	J	UG/KG		560	J	UG/KG	A	54.55
36591	10/07/91	BH00489EBU1, BH00488EBU1	CHRYSENE	770		UG/KG	V	7100	D	UG/KG		160.86
36791	10/09/91	BH00600EBU1, BH00499EBU1	CHRYSENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	CHRYSENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	CHRYSENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	CHRYSENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	CHRYSENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	CHRYSENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	CHRYSENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	CHRYSENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	CHRYSENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	CHRYSENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	CHRYSENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	CHRYSENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	CHRYSENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	CHRYSENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	CHRYSENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 35/38 Percent achieving criteria*: 92.105

BENZO(A)PYRENE

30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZO(a)PYRENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZO(a)PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZO(a)PYRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZO(a)PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZO(a)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZO(a)PYRENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZO(a)PYRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZO(a)PYRENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZO(a)PYRENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZO(a)PYRENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZO(a)PYRENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZO(a)PYRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZO(a)PYRENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZO(a)PYRENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZO(a)PYRENE	400	U	UG/KG	V	400	U	UG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZO(a)PYRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZO(a)PYRENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZO(a)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZO(a)PYRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZO(a)PYRENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZO(a)PYRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZO(a)PYRENE	260	J	UG/KG		480	J	UG/KG	A	59.46
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZO(a)PYRENE	670	J	UG/KG	A	6000	D	UG/KG		159.82
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZO(a)PYRENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZO(a)PYRENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZO(a)PYRENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZO(a)PYRENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZO(a)PYRENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZO(a)PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZO(a)PYRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZO(a)PYRENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZO(a)PYRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZO(a)PYRENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZO(a)PYRENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZO(a)PYRENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZO(a)PYRENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZO(a)PYRENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZO(a)PYRENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 36/38					Percent achieving criteria*: 94.737				
2,4-DINITROPHENOL												
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4-DINITROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4-DINITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4-DINITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4-DINITROPHENOL	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4-DINITROPHENOL	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4-DINITROPHENOL	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4-DINITROPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4-DINITROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4-DINITROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4-DINITROPHENOL	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4-DINITROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4-DINITROPHENOL	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4-DINITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4-DINITROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4-DINITROPHENOL	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4-DINITROPHENOL	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4-DINITROPHENOL	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4-DINITROPHENOL	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4-DINITROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4-DINITROPHENOL	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4-DINITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4-DINITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4-DINITROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4-DINITROPHENOL	2000	U	UG/KG	V	2100	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4-DINITROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2,4-DINITROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303390	07/11/90	B3033900008	2,4-DINITROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,4-DINITROPHENOL	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4-DINITROPHENOL	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4-DINITROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 35/35					Percent achieving criteria*: 100.000				
DIBENZO(A,H)ANTHRACENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	DIBENZO(a,h)ANTHRACENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DIBENZO(a,h)ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	DIBENZO(a,h)ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	DIBENZO(a,h)ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	DIBENZO(a,h)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DIBENZO(a,h)ANTHRACENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	DIBENZO(a,h)ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	DIBENZO(a,h)ANTHRACENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	DIBENZO(a,h)ANTHRACENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DIBENZO(a,h)ANTHRACENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	DIBENZO(a,h)ANTHRACENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	DIBENZO(a,h)ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DIBENZO(a,h)ANTHRACENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DIBENZO(a,h)ANTHRACENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	DIBENZO(a,h)ANTHRACENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	DIBENZO(a,h)ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	DIBENZO(a,h)ANTHRACENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DIBENZO(a,h)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DIBENZO(a,h)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DIBENZO(a,h)ANTHRACENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DIBENZO(a,h)ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	DIBENZO(a,h)ANTHRACENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	DIBENZO(a,h)ANTHRACENE	740	U	UG/KG	V	1600	D	UG/KG		73.50
36791	10/09/91	BH00600EBU1, BH00499EBU1	DIBENZO(a,h)ANTHRACENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DIBENZO(a,h)ANTHRACENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DIBENZO(a,h)ANTHRACENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	DIBENZO(a,h)ANTHRACENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	DIBENZO(a,h)ANTHRACENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DIBENZO(a,h)ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DIBENZO(a,h)ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DIBENZO(a,h)ANTHRACENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DIBENZO(a,h)ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DIBENZO(a,h)ANTHRACENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DIBENZO(a,h)ANTHRACENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DIBENZO(a,h)ANTHRACENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DIBENZO(a,h)ANTHRACENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DIBENZO(a,h)ANTHRACENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DIBENZO(a,h)ANTHRACENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 37/38					Percent achieving criteria*: 97.368				

4,6-DINITRO-2-METHYLPHENOL

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30591	08/14/91	BH00049EBU1, BH00047EBU1	4,6-DINITRO-2-METHYLPHENOL	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	4,6-DINITRO-2-METHYLPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4,6-DINITRO-2-METHYLPHENOL	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4,6-DINITRO-2-METHYLPHENOL	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4,6-DINITRO-2-METHYLPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4,6-DINITRO-2-METHYLPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4,6-DINITRO-2-METHYLPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4,6-DINITRO-2-METHYLPHENOL	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4,6-DINITRO-2-METHYLPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4,6-DINITRO-2-METHYLPHENOL	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4,6-DINITRO-2-METHYLPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4,6-DINITRO-2-METHYLPHENOL	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	4,6-DINITRO-2-METHYLPHENOL	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4,6-DINITRO-2-METHYLPHENOL	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4,6-DINITRO-2-METHYLPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4,6-DINITRO-2-METHYLPHENOL	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4,6-DINITRO-2-METHYLPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4,6-DINITRO-2-METHYLPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4,6-DINITRO-2-METHYLPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4,6-DINITRO-2-METHYLPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4,6-DINITRO-2-METHYLPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4,6-DINITRO-2-METHYLPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4,6-DINITRO-2-METHYLPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4,6-DINITRO-2-METHYLPHENOL	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4,6-DINITRO-2-METHYLPHENOL	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4,6-DINITRO-2-METHYLPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

1,3-DICHLOROBENZENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	1,3-DICHLOROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	1,3-DICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	1,3-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	1,3-DICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	1,3-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	1,3-DICHLOROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	1,3-DICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31691	08/26/91	BH00113EBU1, BH00112EBU1	1,3-DICHLOROBENZENE	770	U	UG/KG	V	180	J	UG/KG	A	124.21
31891	08/27/91	BH00125EBU1, BH00122EBU1	1,3-DICHLOROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	1,3-DICHLOROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	1,3-DICHLOROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	1,3-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	1,3-DICHLOROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	1,3-DICHLOROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	1,3-DICHLOROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	1,3-DICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	1,3-DICHLOROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	1,3-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	1,3-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	1,3-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	1,3-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	1,3-DICHLOROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	1,3-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	1,3-DICHLOROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	1,3-DICHLOROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	1,3-DICHLOROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	1,3-DICHLOROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	1,3-DICHLOROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	1,3-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	1,3-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	1,3-DICHLOROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	1,3-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	1,3-DICHLOROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	1,3-DICHLOROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	1,3-DICHLOROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	1,3-DICHLOROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	1,3-DICHLOROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	1,3-DICHLOROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 37/38 Percent achieving criteria*: 97.368

BENZO(A)ANTHRACENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZO(a)ANTHRACENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZO(a)ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZO(a)ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZO(a)ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZO(a)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZO(a)ANTHRACENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZO(a)ANTHRACENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZO(a)ANTHRACENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZO(a)ANTHRACENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZO(a)ANTHRACENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZO(a)ANTHRACENE	810	U	UG/KG	V	130	J	UG/KG	A	144.68
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZO(a)ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZO(a)ANTHRACENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZO(a)ANTHRACENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZO(a)ANTHRACENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZO(a)ANTHRACENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZO(a)ANTHRACENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZO(a)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZO(a)ANTHRACENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZO(a)ANTHRACENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZO(a)ANTHRACENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZO(a)ANTHRACENE	330	J	UG/KG		530	J	UG/KG	A	46.51
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZO(a)ANTHRACENE	760		UG/KG	V	7300	D	UG/KG		162.28
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZO(a)ANTHRACENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZO(a)ANTHRACENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZO(a)ANTHRACENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZO(a)ANTHRACENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BENZO(a)ANTHRACENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZO(a)ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BENZO(a)ANTHRACENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZO(a)ANTHRACENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BENZO(a)ANTHRACENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BENZO(a)ANTHRACENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZO(a)ANTHRACENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZO(a)ANTHRACENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZO(a)ANTHRACENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZO(a)ANTHRACENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZO(a)ANTHRACENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 35/38 Percent achieving criteria*: 92.105

4-CHLORO-3-METHYLPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-CHLORO-3-METHYLPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	4-CHLORO-3-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-CHLORO-3-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-CHLORO-3-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-CHLORO-3-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-CHLORO-3-METHYLPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-CHLORO-3-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-CHLORO-3-METHYLPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-CHLORO-3-METHYLPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-CHLORO-3-METHYLPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-CHLORO-3-METHYLPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-CHLORO-3-METHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-CHLORO-3-METHYLPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-CHLORO-3-METHYLPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-CHLORO-3-METHYLPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-CHLORO-3-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-CHLORO-3-METHYLPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-CHLORO-3-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-CHLORO-3-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-CHLORO-3-METHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-CHLORO-3-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-CHLORO-3-METHYLPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-CHLORO-3-METHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	4-CHLORO-3-METHYLPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-CHLORO-3-METHYLPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-CHLORO-3-METHYLPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-CHLORO-3-METHYLPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-CHLORO-3-METHYLPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-CHLORO-3-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-CHLORO-3-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-CHLORO-3-METHYLPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-CHLORO-3-METHYLPHENOL	410	U	UG/KG	V	440	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-CHLORO-3-METHYLPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4-CHLORO-3-METHYLPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-CHLORO-3-METHYLPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-CHLORO-3-METHYLPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-CHLORO-3-METHYLPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-CHLORO-3-METHYLPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
2,6-DINITROTOLUENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2,6-DINITROTOLUENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,6-DINITROTOLUENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,6-DINITROTOLUENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,6-DINITROTOLUENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,6-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,6-DINITROTOLUENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,6-DINITROTOLUENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,6-DINITROTOLUENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,6-DINITROTOLUENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,6-DINITROTOLUENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,6-DINITROTOLUENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,6-DINITROTOLUENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,6-DINITROTOLUENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,6-DINITROTOLUENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,6-DINITROTOLUENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,6-DINITROTOLUENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,6-DINITROTOLUENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,6-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,6-DINITROTOLUENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,6-DINITROTOLUENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,6-DINITROTOLUENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,6-DINITROTOLUENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,6-DINITROTOLUENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,6-DINITROTOLUENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,6-DINITROTOLUENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,6-DINITROTOLUENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,6-DINITROTOLUENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,6-DINITROTOLUENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	2,6-DINITROTOLUENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,6-DINITROTOLUENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,6-DINITROTOLUENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,6-DINITROTOLUENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,6-DINITROTOLUENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2,6-DINITROTOLUENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,6-DINITROTOLUENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,6-DINITROTOLUENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,6-DINITROTOLUENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,6-DINITROTOLUENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
BENZENAMINE												
B300790	02/09/90	B3007900004	BENZENAMINE	1900	U	UG/KG		2000	U	UG/KG		0.00
B301190	02/22/90	B3011900004	BENZENAMINE	1900	U	UG/KG		2000	U	UG/KG		0.00
B301490	02/26/90	B3014900812	BENZENAMINE	2000	U	UG/KG		2100	U	UG/KG		0.00
B301790	03/20/90	B3017900408	BENZENAMINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZENAMINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZENAMINE	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZENAMINE	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZENAMINE	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZENAMINE	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 9/9					Percent achieving criteria*: 100.000				
N-NITROSODIMETHYLAMINE												
B300790	02/09/90	B3007900004	N-NITROSODIMETHYLAMINE	760	U	UG/KG		780	U	UG/KG		0.00
B301190	02/22/90	B3011900004	N-NITROSODIMETHYLAMINE	780	U	UG/KG		790	U	UG/KG		0.00
B301490	02/26/90	B3014900812	N-NITROSODIMETHYLAMINE	820	U	UG/KG		830	U	UG/KG		0.00
B301790	03/20/90	B3017900408	N-NITROSODIMETHYLAMINE	840	U	UG/KG		830	U	UG/KG		0.00
B301990	03/21/90	B3019900006	N-NITROSODIMETHYLAMINE	820	U	UG/KG		830	U	UG/KG		0.00
B303390	07/11/90	B3033900008	N-NITROSODIMETHYLAMINE	730	U	UG/KG		730	U	UG/KG		0.00
B303490	07/12/90	B3034900008	N-NITROSODIMETHYLAMINE	790	U	UG/KG		790	U	UG/KG		0.00
B303590	07/12/90	B3035900009	N-NITROSODIMETHYLAMINE	750	U	UG/KG		740	U	UG/KG		0.00
B303690	07/13/90	B3036900006	N-NITROSODIMETHYLAMINE	730	U	UG/KG		730	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 9/9					Percent achieving criteria*: 100.000				
N-NITROSO-DI-N-PROPYLAMINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	N-NITROSO-DI-n-PROPYLAMINE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	N-NITROSO-DI-n-PROPYLAMINE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	N-NITROSO-DI-n-PROPYLAMINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	N-NITROSO-DI-n-PROPYLAMINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	N-NITROSO-DI-n-PROPYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	N-NITROSO-DI-n-PROPYLAMINE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	N-NITROSO-DI-n-PROPYLAMINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	N-NITROSO-DI-n-PROPYLAMINE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	N-NITROSO-DI-n-PROPYLAMINE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	N-NITROSO-DI-n-PROPYLAMINE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	N-NITROSO-DI-n-PROPYLAMINE	810	U	UG/KG	V	840	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32491	09/04/91	BH00240EBU1, BH00239EBU1	N-NITROSO-DI-n-PROPYLAMINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	N-NITROSO-DI-n-PROPYLAMINE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	N-NITROSO-DI-n-PROPYLAMINE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	N-NITROSO-DI-n-PROPYLAMINE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	N-NITROSO-DI-n-PROPYLAMINE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	N-NITROSO-DI-n-PROPYLAMINE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	N-NITROSO-DI-n-PROPYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	N-NITROSO-DI-n-PROPYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	N-NITROSO-DI-n-PROPYLAMINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	N-NITROSO-DI-n-PROPYLAMINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	N-NITROSO-DI-n-PROPYLAMINE	730	U	UG/KG		760	U	UG/KG		0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	N-NITROSO-DI-n-PROPYLAMINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	N-NITROSO-DI-n-PROPYLAMINE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	N-NITROSO-DI-n-PROPYLAMINE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	N-NITROSO-DI-n-PROPYLAMINE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	N-NITROSO-DI-n-PROPYLAMINE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	N-NITROSO-DI-n-PROPYLAMINE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	N-NITROSO-DI-n-PROPYLAMINE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	N-NITROSO-DI-n-PROPYLAMINE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	N-NITROSO-DI-n-PROPYLAMINE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	N-NITROSO-DI-n-PROPYLAMINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	N-NITROSO-DI-n-PROPYLAMINE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	N-NITROSO-DI-n-PROPYLAMINE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	N-NITROSO-DI-n-PROPYLAMINE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	N-NITROSO-DI-n-PROPYLAMINE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	N-NITROSO-DI-n-PROPYLAMINE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	N-NITROSO-DI-n-PROPYLAMINE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

BENZOIC ACID												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BENZOIC ACID	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BENZOIC ACID	210	J	UG/KG	A	3700	U	UG/KG	V	178.52
30791	08/16/91	BH00064EBU1, BH00063EBU1	BENZOIC ACID	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BENZOIC ACID	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BENZOIC ACID	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BENZOIC ACID	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BENZOIC ACID	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BENZOIC ACID	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BENZOIC ACID	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BENZOIC ACID	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BENZOIC ACID	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BENZOIC ACID	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BENZOIC ACID	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34891	09/19/91	BH00405EBU1, BH00403EBU1	BENZOIC ACID	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BENZOIC ACID	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BENZOIC ACID	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BENZOIC ACID	3600	U	UG/KG		840	J	UG/KG	A	124.32
36591	10/07/91	BH00489EBU1, BH00488EBU1	BENZOIC ACID	3600	U	UG/KG	V	230	J	UG/KG	V	175.98
36791	10/09/91	BH00600EBU1, BH00499EBU1	BENZOIC ACID	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BENZOIC ACID	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BENZOIC ACID	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BENZOIC ACID	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BENZOIC ACID	1900	U	UG/KG	V	46	UJ	UG/KG	A	0.00
B300790	02/09/90	B3007900004	BENZOIC ACID	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BENZOIC ACID	78	J	UG/KG	A	77	J	UG/KG	A	1.29
B301490	02/26/90	B3014900812	BENZOIC ACID	2000	UJ	UG/KG	A	2000	UJ	UG/KG	A	0.00
B301790	03/20/90	B3017900408	BENZOIC ACID	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZOIC ACID	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZOIC ACID	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZOIC ACID	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZOIC ACID	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZOIC ACID	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 34/37					Percent achieving criteria*: 91.892				
HEXACHLOROETHANE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	HEXACHLOROETHANE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	HEXACHLOROETHANE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	HEXACHLOROETHANE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	HEXACHLOROETHANE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	HEXACHLOROETHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	HEXACHLOROETHANE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	HEXACHLOROETHANE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	HEXACHLOROETHANE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	HEXACHLOROETHANE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	HEXACHLOROETHANE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	HEXACHLOROETHANE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	HEXACHLOROETHANE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	HEXACHLOROETHANE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	HEXACHLOROETHANE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	HEXACHLOROETHANE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	HEXACHLOROETHANE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	HEXACHLOROETHANE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	HEXACHLOROETHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	HEXACHLOROETHANE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	HEXACHLOROETHANE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	HEXACHLOROETHANE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	HEXACHLOROETHANE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	HEXACHLOROETHANE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	HEXACHLOROETHANE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	HEXACHLOROETHANE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	HEXACHLOROETHANE	750	U	UG/KG	V	750	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37291	10/15/91	BH00634EBU1, BH00632EBU1	HEXACHLOROETHANE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	HEXACHLOROETHANE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	HEXACHLOROETHANE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEXACHLOROETHANE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEXACHLOROETHANE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEXACHLOROETHANE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEXACHLOROETHANE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEXACHLOROETHANE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEXACHLOROETHANE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEXACHLOROETHANE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEXACHLOROETHANE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEXACHLOROETHANE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

4-CHLOROPHENYL PHENYL ETHER												
30591	08/14/91	BH00049EBU1, BH00047EBU1	4-CHLOROPHENYL PHENYL ETHER	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	4-CHLOROPHENYL PHENYL ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	4-CHLOROPHENYL PHENYL ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	4-CHLOROPHENYL PHENYL ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	4-CHLOROPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	4-CHLOROPHENYL PHENYL ETHER	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	4-CHLOROPHENYL PHENYL ETHER	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	4-CHLOROPHENYL PHENYL ETHER	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	4-CHLOROPHENYL PHENYL ETHER	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	4-CHLOROPHENYL PHENYL ETHER	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	4-CHLOROPHENYL PHENYL ETHER	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	4-CHLOROPHENYL PHENYL ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	4-CHLOROPHENYL PHENYL ETHER	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	4-CHLOROPHENYL PHENYL ETHER	330	U	UG/KG	V	330	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	4-CHLOROPHENYL PHENYL ETHER	330	U	UG/KG	V	330	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	4-CHLOROPHENYL PHENYL ETHER	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	4-CHLOROPHENYL PHENYL ETHER	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	4-CHLOROPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	4-CHLOROPHENYL PHENYL ETHER	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	4-CHLOROPHENYL PHENYL ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	4-CHLOROPHENYL PHENYL ETHER	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	4-CHLOROPHENYL PHENYL ETHER	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	4-CHLOROPHENYL PHENYL ETHER	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	4-CHLOROPHENYL PHENYL ETHER	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	4-CHLOROPHENYL PHENYL ETHER	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	4-CHLOROPHENYL PHENYL ETHER	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	4-CHLOROPHENYL PHENYL ETHER	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	4-CHLOROPHENYL PHENYL ETHER	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	4-CHLOROPHENYL PHENYL ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4-CHLOROPHENYL PHENYL ETHER	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4-CHLOROPHENYL PHENYL ETHER	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4-CHLOROPHENYL PHENYL ETHER	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4-CHLOROPHENYL PHENYL ETHER	420	U	UG/KG		420	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900006	4-CHLOROPHENYL PHENYL ETHER	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4-CHLOROPHENYL PHENYL ETHER	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4-CHLOROPHENYL PHENYL ETHER	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4-CHLOROPHENYL PHENYL ETHER	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4-CHLOROPHENYL PHENYL ETHER	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
HEXACHLOROCYCLOPENTADIENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	HEXACHLOROCYCLOPENTADIENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	HEXACHLOROCYCLOPENTADIENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	HEXACHLOROCYCLOPENTADIENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	HEXACHLOROCYCLOPENTADIENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	HEXACHLOROCYCLOPENTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	HEXACHLOROCYCLOPENTADIENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	HEXACHLOROCYCLOPENTADIENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	HEXACHLOROCYCLOPENTADIENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	HEXACHLOROCYCLOPENTADIENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	HEXACHLOROCYCLOPENTADIENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	HEXACHLOROCYCLOPENTADIENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	HEXACHLOROCYCLOPENTADIENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	HEXACHLOROCYCLOPENTADIENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	HEXACHLOROCYCLOPENTADIENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	HEXACHLOROCYCLOPENTADIENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	HEXACHLOROCYCLOPENTADIENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	HEXACHLOROCYCLOPENTADIENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	HEXACHLOROCYCLOPENTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	HEXACHLOROCYCLOPENTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	HEXACHLOROCYCLOPENTADIENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	HEXACHLOROCYCLOPENTADIENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	HEXACHLOROCYCLOPENTADIENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	HEXACHLOROCYCLOPENTADIENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	HEXACHLOROCYCLOPENTADIENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	HEXACHLOROCYCLOPENTADIENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	HEXACHLOROCYCLOPENTADIENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	HEXACHLOROCYCLOPENTADIENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	HEXACHLOROCYCLOPENTADIENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	HEXACHLOROCYCLOPENTADIENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEXACHLOROCYCLOPENTADIENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEXACHLOROCYCLOPENTADIENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEXACHLOROCYCLOPENTADIENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEXACHLOROCYCLOPENTADIENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEXACHLOROCYCLOPENTADIENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEXACHLOROCYCLOPENTADIENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEXACHLOROCYCLOPENTADIENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEXACHLOROCYCLOPENTADIENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEXACHLOROCYCLOPENTADIENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
ISOPHORONE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30591	08/14/91	BH00049EBU1, BH00047EBU1	ISOPHORONE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	ISOPHORONE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	ISOPHORONE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	ISOPHORONE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	ISOPHORONE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	ISOPHORONE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	ISOPHORONE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	ISOPHORONE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	ISOPHORONE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	ISOPHORONE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	ISOPHORONE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	ISOPHORONE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ISOPHORONE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	ISOPHORONE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	ISOPHORONE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	ISOPHORONE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	ISOPHORONE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	ISOPHORONE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	ISOPHORONE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	ISOPHORONE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	ISOPHORONE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	ISOPHORONE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	ISOPHORONE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	ISOPHORONE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	ISOPHORONE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	ISOPHORONE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	ISOPHORONE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	ISOPHORONE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	ISOPHORONE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ISOPHORONE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ISOPHORONE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ISOPHORONE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ISOPHORONE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ISOPHORONE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ISOPHORONE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ISOPHORONE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ISOPHORONE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ISOPHORONE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

ACENAPHTHENE

30591	08/14/91	BH00049EBU1, BH00047EBU1	ACENAPHTHENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	ACENAPHTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	ACENAPHTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	ACENAPHTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	ACENAPHTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	ACENAPHTHENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	ACENAPHTHENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31691	08/26/91	BH00113EBU1, BH00112EBU1	ACENAPHTHENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	ACENAPHTHENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	ACENAPHTHENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	ACENAPHTHENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	ACENAPHTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ACENAPHTHENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	ACENAPHTHENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	ACENAPHTHENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	ACENAPHTHENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	ACENAPHTHENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	ACENAPHTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	ACENAPHTHENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	ACENAPHTHENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	ACENAPHTHENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	ACENAPHTHENE	110	J	UG/KG		250	J	UG/KG	A	77.78
36591	10/07/91	BH00489EBU1, BH00488EBU1	ACENAPHTHENE	390	J	UG/KG	A	3600	D	UG/KG		160.90
36791	10/09/91	BH00600EBU1, BH00499EBU1	ACENAPHTHENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	ACENAPHTHENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	ACENAPHTHENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	ACENAPHTHENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	ACENAPHTHENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	ACENAPHTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ACENAPHTHENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ACENAPHTHENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ACENAPHTHENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ACENAPHTHENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ACENAPHTHENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ACENAPHTHENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ACENAPHTHENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ACENAPHTHENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ACENAPHTHENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 36/38 Percent achieving criteria*: 94.737

DIETHYL PHTHALATE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	DIETHYL PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DIETHYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	DIETHYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	DIETHYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	DIETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DIETHYL PHTHALATE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	DIETHYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	DIETHYL PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	DIETHYL PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DIETHYL PHTHALATE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	DIETHYL PHTHALATE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	DIETHYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DIETHYL PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DIETHYL PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33291	09/10/91	BH00289EBU1, BH00288EBU1	DIETHYL PHTHALATE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	DIETHYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	DIETHYL PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DIETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DIETHYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DIETHYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DIETHYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	DIETHYL PHTHALATE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	DIETHYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	DIETHYL PHTHALATE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DIETHYL PHTHALATE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DIETHYL PHTHALATE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	DIETHYL PHTHALATE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	DIETHYL PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DIETHYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DIETHYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DIETHYL PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DIETHYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DIETHYL PHTHALATE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DIETHYL PHTHALATE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DIETHYL PHTHALATE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DIETHYL PHTHALATE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DIETHYL PHTHALATE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DIETHYL PHTHALATE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

DI-N-BUTYL PHTHALATE

30591	08/14/91	BH00049EBU1, BH00047EBU1	DI-n-BUTYL PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	DI-n-BUTYL PHTHALATE	210	BJ	UG/KG	JA	200	BJ	UG/KG	JA	4.88
30791	08/16/91	BH00064EBU1, BH00063EBU1	DI-n-BUTYL PHTHALATE	380	J	UG/KG	A	440	J	UG/KG	A	14.63
30891	08/19/91	BH00073EBU1, BH00070EBU1	DI-n-BUTYL PHTHALATE	380	BJ	UG/KG	JA	460	BJ	UG/KG	JA	19.05
31091	08/20/91	BH00085EBU1, BH00084EBU1	DI-n-BUTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	DI-n-BUTYL PHTHALATE	81	J	UG/KG	A	790	U	UG/KG	V	162.80
31591	08/23/91	BH00106EBU1, BH00103EBU1	DI-n-BUTYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	DI-n-BUTYL PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	DI-n-BUTYL PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	DI-n-BUTYL PHTHALATE	110	BJ	UG/KG	JA	150	BJ	UG/KG	JA	30.77
32191	08/30/91	BH00221EBU1, BH00219EBU1	DI-n-BUTYL PHTHALATE	360	J	UG/KG	A	210	J	UG/KG	A	52.63
32491	09/04/91	BH00240EBU1, BH00239EBU1	DI-n-BUTYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	DI-n-BUTYL PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	DI-n-BUTYL PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	DI-n-BUTYL PHTHALATE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	DI-n-BUTYL PHTHALATE	770	U	UG/KG	V	80	J	UG/KG	A	162.35
34291	09/16/91	BH00380EBU1, BH00379EBU1	DI-n-BUTYL PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	DI-n-BUTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	DI-n-BUTYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	DI-n-BUTYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	DI-n-BUTYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36391	10/04/91	BH00524EBU1, BH00523EBU1	DI-n-BUTYL PHTHALATE	730	U	UG/KG		110	J	UG/KG	A	147.62
36591	10/07/91	BH00489EBU1, BH00488EBU1	DI-n-BUTYL PHTHALATE	740	U	UG/KG	V	410	DJ	UG/KG		57.39
36791	10/09/91	BH00600EBU1, BH00499EBU1	DI-n-BUTYL PHTHALATE	820	U	UG/KG	A	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	DI-n-BUTYL PHTHALATE	160	J	UG/KG	A	160	J	UG/KG	A	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	DI-n-BUTYL PHTHALATE	83	BJ	UG/KG	JA	160	BJ	UG/KG	JA	63.37
37291	10/15/91	BH00634EBU1, BH00632EBU1	DI-n-BUTYL PHTHALATE	170	BJ	UG/KG	JA	140	BJ	UG/KG	JA	19.35
37391	10/16/91	BH00651EBU1, BH00650EBU1	DI-n-BUTYL PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	DI-n-BUTYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DI-n-BUTYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DI-n-BUTYL PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DI-n-BUTYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DI-n-BUTYL PHTHALATE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DI-n-BUTYL PHTHALATE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DI-n-BUTYL PHTHALATE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DI-n-BUTYL PHTHALATE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DI-n-BUTYL PHTHALATE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DI-n-BUTYL PHTHALATE	39	JB	UG/KG		43	JB	UG/KG		9.76
			Number achieving RPD criteria* per number of duplicate pairs: 32/38					Percent achieving criteria*: 84.211				
PHENANTHRENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	PHENANTHRENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	PHENANTHRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	PHENANTHRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	PHENANTHRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	PHENANTHRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	PHENANTHRENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	PHENANTHRENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	PHENANTHRENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	PHENANTHRENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	PHENANTHRENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	PHENANTHRENE	810	U	UG/KG	V	380	J	UG/KG	A	72.27
32491	09/04/91	BH00240EBU1, BH00239EBU1	PHENANTHRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	PHENANTHRENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	PHENANTHRENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	PHENANTHRENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	PHENANTHRENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	PHENANTHRENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	PHENANTHRENE	790	U	UG/KG	V	160	J	UG/KG	A	132.63
34891	09/19/91	BH00405EBU1, BH00403EBU1	PHENANTHRENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	PHENANTHRENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	PHENANTHRENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	PHENANTHRENE	710	J	UG/KG		1500		UG/KG		71.49
36591	10/07/91	BH00489EBU1, BH00488EBU1	PHENANTHRENE	1900		UG/KG	V	16000	D	UG/KG	V	157.54
36791	10/09/91	BH00600EBU1, BH00499EBU1	PHENANTHRENE	150	J	UG/KG	A	790	U	UG/KG	V	136.17
36891	10/10/91	BH00610EBU1, BH00609EBU1	PHENANTHRENE	91	J	UG/KG	A	750	U	UG/KG	V	156.72
37091	10/14/91	BH00625EBU1, BH00624EBU1	PHENANTHRENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	PHENANTHRENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	PHENANTHRENE	110	J	UG/KG	A	800	U	UG/KG	V	151.65

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	PHENANTHRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	PHENANTHRENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	PHENANTHRENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	PHENANTHRENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	PHENANTHRENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	PHENANTHRENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	PHENANTHRENE	370	U	UG/KG		38	J	UG/KG		162.75
B303490	07/12/90	B3034900008	PHENANTHRENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	PHENANTHRENE	380	U	UG/KG		42	J	UG/KG		160.19
B303690	07/13/90	B3036900006	PHENANTHRENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 29/38					Percent achieving criteria*: 76.316				
BUTYL BENZYL PHTHALATE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BUTYL BENZYL PHTHALATE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	BUTYL BENZYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	BUTYL BENZYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	BUTYL BENZYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	BUTYL BENZYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	BUTYL BENZYL PHTHALATE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	BUTYL BENZYL PHTHALATE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	BUTYL BENZYL PHTHALATE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	BUTYL BENZYL PHTHALATE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	BUTYL BENZYL PHTHALATE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	BUTYL BENZYL PHTHALATE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	BUTYL BENZYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	BUTYL BENZYL PHTHALATE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	BUTYL BENZYL PHTHALATE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	BUTYL BENZYL PHTHALATE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	BUTYL BENZYL PHTHALATE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	BUTYL BENZYL PHTHALATE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	BUTYL BENZYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	BUTYL BENZYL PHTHALATE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	BUTYL BENZYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	BUTYL BENZYL PHTHALATE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	BUTYL BENZYL PHTHALATE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	BUTYL BENZYL PHTHALATE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	BUTYL BENZYL PHTHALATE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	BUTYL BENZYL PHTHALATE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	BUTYL BENZYL PHTHALATE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	BUTYL BENZYL PHTHALATE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	BUTYL BENZYL PHTHALATE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	BUTYL BENZYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	BUTYL BENZYL PHTHALATE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	BUTYL BENZYL PHTHALATE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	BUTYL BENZYL PHTHALATE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	BUTYL BENZYL PHTHALATE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BUTYL BENZYL PHTHALATE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BUTYL BENZYL PHTHALATE	370	U	UG/KG		370	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303490	07/12/90	B3034900008	BUTYL BENZYL PHTHALATE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BUTYL BENZYL PHTHALATE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BUTYL BENZYL PHTHALATE	360	U	UG/KG		51	JB	UG/KG		150.36
			Number achieving RPD criteria* per number of duplicate pairs: 37/38					Percent achieving criteria*: 97.368				
N-NITROSODIPHENYLAMINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	N-NITROSODIPHENYLAMINE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	N-NITROSODIPHENYLAMINE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	N-NITROSODIPHENYLAMINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	N-NITROSODIPHENYLAMINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	N-NITROSODIPHENYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	N-NITROSODIPHENYLAMINE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	N-NITROSODIPHENYLAMINE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	N-NITROSODIPHENYLAMINE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	N-NITROSODIPHENYLAMINE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	N-NITROSODIPHENYLAMINE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	N-NITROSODIPHENYLAMINE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	N-NITROSODIPHENYLAMINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	N-NITROSODIPHENYLAMINE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	N-NITROSODIPHENYLAMINE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	N-NITROSODIPHENYLAMINE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	N-NITROSODIPHENYLAMINE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	N-NITROSODIPHENYLAMINE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	N-NITROSODIPHENYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	N-NITROSODIPHENYLAMINE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	N-NITROSODIPHENYLAMINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	N-NITROSODIPHENYLAMINE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	N-NITROSODIPHENYLAMINE	730	U	UG/KG		760	U	UG/KG		0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	N-NITROSODIPHENYLAMINE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	N-NITROSODIPHENYLAMINE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	N-NITROSODIPHENYLAMINE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	N-NITROSODIPHENYLAMINE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	N-NITROSODIPHENYLAMINE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	N-NITROSODIPHENYLAMINE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	N-NITROSODIPHENYLAMINE	380	U	UG/KG	V	46	J	UG/KG	A	156.81
B300790	02/09/90	B3007900004	N-NITROSODIPHENYLAMINE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	N-NITROSODIPHENYLAMINE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	N-NITROSODIPHENYLAMINE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	N-NITROSODIPHENYLAMINE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	N-NITROSODIPHENYLAMINE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	N-NITROSODIPHENYLAMINE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	N-NITROSODIPHENYLAMINE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	N-NITROSODIPHENYLAMINE	42	J	UG/KG		370	U	UG/KG		159.22
B303690	07/13/90	B3036900006	N-NITROSODIPHENYLAMINE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 36/38					Percent achieving criteria*: 94.737				
FLUORENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	FLUORENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30691	08/15/91	BH00056EBU1, BH00055EBU1	FLUORENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	FLUORENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	FLUORENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	FLUORENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	FLUORENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	FLUORENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	FLUORENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	FLUORENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	FLUORENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	FLUORENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	FLUORENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	FLUORENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	FLUORENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	FLUORENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	FLUORENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	FLUORENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	FLUORENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	FLUORENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	FLUORENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	FLUORENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	FLUORENE	79	J	UG/KG		190	J	UG/KG	A	82.53
36591	10/07/91	BH00489EBU1, BH00488EBU1	FLUORENE	320	J	UG/KG	A	3100	D	UG/KG		162.57
36791	10/09/91	BH00600EBU1, BH00499EBU1	FLUORENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	FLUORENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	FLUORENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	FLUORENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	FLUORENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	FLUORENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	FLUORENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	FLUORENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	FLUORENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	FLUORENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	FLUORENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	FLUORENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	FLUORENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	FLUORENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	FLUORENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 36/38 Percent achieving criteria*: 94.737

HEXACHLOROBUTADIENE

30591	08/14/91	BH00049EBU1, BH00047EBU1	HEXACHLOROBUTADIENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	HEXACHLOROBUTADIENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	HEXACHLOROBUTADIENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	HEXACHLOROBUTADIENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	HEXACHLOROBUTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	HEXACHLOROBUTADIENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	HEXACHLOROBUTADIENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	HEXACHLOROBUTADIENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31891	08/27/91	BH00125EBU1, BH00122EBU1	HEXACHLOROBUTADIENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	HEXACHLOROBUTADIENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	HEXACHLOROBUTADIENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	HEXACHLOROBUTADIENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	HEXACHLOROBUTADIENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	HEXACHLOROBUTADIENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	HEXACHLOROBUTADIENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	HEXACHLOROBUTADIENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	HEXACHLOROBUTADIENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	HEXACHLOROBUTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	HEXACHLOROBUTADIENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	HEXACHLOROBUTADIENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	HEXACHLOROBUTADIENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	HEXACHLOROBUTADIENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	HEXACHLOROBUTADIENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	HEXACHLOROBUTADIENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	HEXACHLOROBUTADIENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	HEXACHLOROBUTADIENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	HEXACHLOROBUTADIENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	HEXACHLOROBUTADIENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	HEXACHLOROBUTADIENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEXACHLOROBUTADIENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEXACHLOROBUTADIENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEXACHLOROBUTADIENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEXACHLOROBUTADIENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEXACHLOROBUTADIENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEXACHLOROBUTADIENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEXACHLOROBUTADIENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEXACHLOROBUTADIENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEXACHLOROBUTADIENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
PENTACHLOROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	PENTACHLOROPHENOL	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	PENTACHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	PENTACHLOROPHENOL	120	J	UG/KG	A	3800	U	UG/KG	V	187.76
31291	08/21/91	BH00094EBU1, BH00091EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	PENTACHLOROPHENOL	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	PENTACHLOROPHENOL	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	PENTACHLOROPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	PENTACHLOROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	PENTACHLOROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	PENTACHLOROPHENOL	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33591	09/11/91	BH00295EBU1, BH00294EBU1	PENTACHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	PENTACHLOROPHENOL	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	PENTACHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	PENTACHLOROPHENOL	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	PENTACHLOROPHENOL	3600	U	UG/KG		250	J	UG/KG		174.03
36591	10/07/91	BH00489EBU1, BH00488EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	PENTACHLOROPHENOL	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	PENTACHLOROPHENOL	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	PENTACHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	PENTACHLOROPHENOL	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	PENTACHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	PENTACHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	PENTACHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	PENTACHLOROPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	PENTACHLOROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	PENTACHLOROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	PENTACHLOROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	PENTACHLOROPHENOL	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	PENTACHLOROPHENOL	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	PENTACHLOROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 36/38 Percent achieving criteria*: 94.737

2,4,6-TRICHLOROPHENOL

30591	08/14/91	BH00049EBU1, BH00047EBU1	2,4,6-TRICHLOROPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4,6-TRICHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4,6-TRICHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4,6-TRICHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4,6-TRICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,4,6-TRICHLOROPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,4,6-TRICHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4,6-TRICHLOROPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4,6-TRICHLOROPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4,6-TRICHLOROPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4,6-TRICHLOROPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4,6-TRICHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4,6-TRICHLOROPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4,6-TRICHLOROPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4,6-TRICHLOROPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4,6-TRICHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4,6-TRICHLOROPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4,6-TRICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4,6-TRICHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4,6-TRICHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4,6-TRICHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4,6-TRICHLOROPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4,6-TRICHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4,6-TRICHLOROPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4,6-TRICHLOROPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4,6-TRICHLOROPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4,6-TRICHLOROPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4,6-TRICHLOROPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4,6-TRICHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4,6-TRICHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4,6-TRICHLOROPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4,6-TRICHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4,6-TRICHLOROPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2,4,6-TRICHLOROPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,4,6-TRICHLOROPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,4,6-TRICHLOROPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4,6-TRICHLOROPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4,6-TRICHLOROPHENOL	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

2-NITROANILINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-NITROANILINE	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-NITROANILINE	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-NITROANILINE	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-NITROANILINE	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-NITROANILINE	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-NITROANILINE	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-NITROANILINE	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-NITROANILINE	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-NITROANILINE	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-NITROANILINE	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-NITROANILINE	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-NITROANILINE	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-NITROANILINE	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-NITROANILINE	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300790	02/09/90	B3007900004	2-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-NITROANILINE	2000	U	UG/KG	V	2100	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-NITROANILINE	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2-NITROANILINE	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
2-NITROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-NITROPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-NITROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-NITROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-NITROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-NITROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-NITROPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-NITROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-NITROPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-NITROPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-NITROPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-NITROPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-NITROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-NITROPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-NITROPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-NITROPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-NITROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-NITROPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-NITROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-NITROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-NITROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-NITROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-NITROPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-NITROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-NITROPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-NITROPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-NITROPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-NITROPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-NITROPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-NITROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2-NITROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-NITROPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-NITROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2-NITROPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-NITROPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-NITROPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-NITROPHENOL	390	U	UG/KG		400	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900009	2-NITROPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-NITROPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
NAPHTHALENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	NAPHTHALENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	NAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	NAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	NAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	NAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	NAPHTHALENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	NAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	NAPHTHALENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	NAPHTHALENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	NAPHTHALENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	NAPHTHALENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	NAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	NAPHTHALENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	NAPHTHALENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	NAPHTHALENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	NAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	NAPHTHALENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	NAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	NAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	NAPHTHALENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	NAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	NAPHTHALENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	NAPHTHALENE	470	J	UG/KG	A	4500	D	UG/KG		162.17
36791	10/09/91	BH00600EBU1, BH00499EBU1	NAPHTHALENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	NAPHTHALENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	NAPHTHALENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	NAPHTHALENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	NAPHTHALENE	390	J	UG/KG	A	800	U	UG/KG	V	68.91
B300190	02/02/90	B3001900006	NAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	NAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	NAPHTHALENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	NAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	NAPHTHALENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	NAPHTHALENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	NAPHTHALENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	NAPHTHALENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	NAPHTHALENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	NAPHTHALENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 36/38					Percent achieving criteria*: 94.737				
2-METHYLNAPHTHALENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-METHYLNAPHTHALENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-METHYLNAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-METHYLNAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-METHYLNAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-METHYLNAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-METHYLNAPHTHALENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-METHYLNAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-METHYLNAPHTHALENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-METHYLNAPHTHALENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-METHYLNAPHTHALENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-METHYLNAPHTHALENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-METHYLNAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-METHYLNAPHTHALENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-METHYLNAPHTHALENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-METHYLNAPHTHALENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-METHYLNAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-METHYLNAPHTHALENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-METHYLNAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-METHYLNAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-METHYLNAPHTHALENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-METHYLNAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-METHYLNAPHTHALENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-METHYLNAPHTHALENE	110	J	UG/KG	A	1200	DJ	UG/KG		166.41
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-METHYLNAPHTHALENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-METHYLNAPHTHALENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-METHYLNAPHTHALENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-METHYLNAPHTHALENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-METHYLNAPHTHALENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-METHYLNAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2-METHYLNAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-METHYLNAPHTHALENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-METHYLNAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2-METHYLNAPHTHALENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-METHYLNAPHTHALENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-METHYLNAPHTHALENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-METHYLNAPHTHALENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2-METHYLNAPHTHALENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-METHYLNAPHTHALENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 37/38 Percent achieving criteria*: 97.368

2-CHLORONAPHTHALENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-CHLORONAPHTHALENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-CHLORONAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-CHLORONAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-CHLORONAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-CHLORONAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-CHLORONAPHTHALENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-CHLORONAPHTHALENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-CHLORONAPHTHALENE	700	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-CHLORONAPHTHALENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-CHLORONAPHTHALENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-CHLORONAPHTHALENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-CHLORONAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-CHLORONAPHTHALENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-CHLORONAPHTHALENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-CHLORONAPHTHALENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-CHLORONAPHTHALENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-CHLORONAPHTHALENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-CHLORONAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-CHLORONAPHTHALENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-CHLORONAPHTHALENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-CHLORONAPHTHALENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-CHLORONAPHTHALENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-CHLORONAPHTHALENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-CHLORONAPHTHALENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-CHLORONAPHTHALENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-CHLORONAPHTHALENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-CHLORONAPHTHALENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-CHLORONAPHTHALENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-CHLORONAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2-CHLORONAPHTHALENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-CHLORONAPHTHALENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-CHLORONAPHTHALENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2-CHLORONAPHTHALENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-CHLORONAPHTHALENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-CHLORONAPHTHALENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-CHLORONAPHTHALENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2-CHLORONAPHTHALENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-CHLORONAPHTHALENE	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

3,3'-DICHLOROBENZIDINE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1600	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1500	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1700	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	3,3'-DICHLOROBENZIDINE	820	U	UG/KG	V	820	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	3,3'-DICHLOROBENZIDINE	740	U	UG/KG	V	780	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	3,3'-DICHLOROBENZIDINE	730	U	UG/KG	V	780	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	3,3'-DICHLOROBENZIDINE	810	U	UG/KG	V	800	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34291	09/16/91	BH00380EBU1, BH00379EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG		1500	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	3,3'-DICHLOROBENZIDINE	1600	U	UG/KG	V	1600	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	3,3'-DICHLOROBENZIDINE	1500	U	UG/KG	V	1500	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	3,3'-DICHLOROBENZIDINE	770	U	UG/KG	V	780	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	3,3'-DICHLOROBENZIDINE	760	U	UG/KG	V	780	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	3,3'-DICHLOROBENZIDINE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	3,3'-DICHLOROBENZIDINE	820	U	UG/KG	V	830	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	3,3'-DICHLOROBENZIDINE	840	U	UG/KG		830	U	UG/KG		0.00
B301990	03/21/90	B3019900006	3,3'-DICHLOROBENZIDINE	820	U	UG/KG		830	U	UG/KG		0.00
B303390	07/11/90	B3033900008	3,3'-DICHLOROBENZIDINE	730	U	UG/KG		730	U	UG/KG		0.00
B303490	07/12/90	B3034900008	3,3'-DICHLOROBENZIDINE	790	U	UG/KG		790	U	UG/KG		0.00
B303590	07/12/90	B3035900009	3,3'-DICHLOROBENZIDINE	750	U	UG/KG		740	U	UG/KG		0.00
B303690	07/13/90	B3036900006	3,3'-DICHLOROBENZIDINE	730	U	UG/KG		730	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 37/37					Percent achieving criteria*: 100.000				
BENZIDINE												
B300790	02/09/90	B3007900004	BENZIDINE	1900	U	UG/KG		2000	U	UG/KG		0.00
B301190	02/22/90	B3011900004	BENZIDINE	1900	U	UG/KG		2000	U	UG/KG		0.00
B301490	02/26/90	B3014900812	BENZIDINE	2000	U	UG/KG		2100	U	UG/KG		0.00
B301790	03/20/90	B3017900408	BENZIDINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	BENZIDINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	BENZIDINE	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	BENZIDINE	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	BENZIDINE	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	BENZIDINE	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 9/9					Percent achieving criteria*: 100.000				
2-METHYLPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-METHYLPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-METHYLPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-METHYLPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-METHYLPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-METHYLPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-METHYLPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-METHYLPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-METHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-METHYLPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-METHYLPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-METHYLPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-METHYLPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-METHYLPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-METHYLPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-METHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-METHYLPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-METHYLPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-METHYLPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-METHYLPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-METHYLPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-METHYLPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-METHYLPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-METHYLPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2-METHYLPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-METHYLPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-METHYLPHENOL	410	U	UG/KG	V	410	U	UG/KG		0.00
B301790	03/20/90	B3017900408	2-METHYLPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-METHYLPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-METHYLPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-METHYLPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2-METHYLPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-METHYLPHENOL	360	U	UG/KG		360	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 38/38 Percent achieving criteria*: 100.000

1,2-DICHLOROBENZENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	1,2-DICHLOROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	1,2-DICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	1,2-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	1,2-DICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	1,2-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	1,2-DICHLOROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	1,2-DICHLOROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	1,2-DICHLOROBENZENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	1,2-DICHLOROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	1,2-DICHLOROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	1,2-DICHLOROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	1,2-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	1,2-DICHLOROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	1,2-DICHLOROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	1,2-DICHLOROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	1,2-DICHLOROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	1,2-DICHLOROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	1,2-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	1,2-DICHLOROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34991	09/20/91	BH00414EBU1, BH00413EBU1	1,2-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	1,2-DICHLOROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	1,2-DICHLOROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	1,2-DICHLOROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	1,2-DICHLOROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	1,2-DICHLOROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	1,2-DICHLOROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	1,2-DICHLOROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	1,2-DICHLOROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	1,2-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	1,2-DICHLOROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	1,2-DICHLOROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	1,2-DICHLOROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	1,2-DICHLOROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	1,2-DICHLOROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	1,2-DICHLOROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	1,2-DICHLOROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	1,2-DICHLOROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	1,2-DICHLOROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
2-CHLOROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2-CHLOROPHENOL	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2-CHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2-CHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2-CHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2-CHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2-CHLOROPHENOL	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2-CHLOROPHENOL	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2-CHLOROPHENOL	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2-CHLOROPHENOL	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2-CHLOROPHENOL	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2-CHLOROPHENOL	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2-CHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2-CHLOROPHENOL	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2-CHLOROPHENOL	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2-CHLOROPHENOL	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2-CHLOROPHENOL	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2-CHLOROPHENOL	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2-CHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2-CHLOROPHENOL	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2-CHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2-CHLOROPHENOL	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2-CHLOROPHENOL	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2-CHLOROPHENOL	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2-CHLOROPHENOL	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2-CHLOROPHENOL	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2-CHLOROPHENOL	750	U	UG/KG	V	750	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37291	10/15/91	BH00634EBU1, BH00632EBU1	2-CHLOROPHENOL	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2-CHLOROPHENOL	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2-CHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2-CHLOROPHENOL	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2-CHLOROPHENOL	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2-CHLOROPHENOL	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2-CHLOROPHENOL	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	2-CHLOROPHENOL	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2-CHLOROPHENOL	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2-CHLOROPHENOL	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2-CHLOROPHENOL	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2-CHLOROPHENOL	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
2,4,5-TRICHLOROPHENOL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	2,4,5-TRICHLOROPHENOL	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	2,4,5-TRICHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	2,4,5-TRICHLOROPHENOL	3700	U	UG/KG	V	3900	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3700	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	2,4,5-TRICHLOROPHENOL	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	2,4,5-TRICHLOROPHENOL	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	2,4,5-TRICHLOROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	2,4,5-TRICHLOROPHENOL	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	2,4,5-TRICHLOROPHENOL	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	2,4,5-TRICHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	2,4,5-TRICHLOROPHENOL	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	2,4,5-TRICHLOROPHENOL	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	2,4,5-TRICHLOROPHENOL	3500	U	UG/KG	V	3500	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	2,4,5-TRICHLOROPHENOL	4000	U	UG/KG	V	3800	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	2,4,5-TRICHLOROPHENOL	3700	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	2,4,5-TRICHLOROPHENOL	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	2,4,5-TRICHLOROPHENOL	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	2,4,5-TRICHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	2,4,5-TRICHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	2,4,5-TRICHLOROPHENOL	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	2,4,5-TRICHLOROPHENOL	2000	U	UG/KG	V	2100	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	2,4,5-TRICHLOROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900006	2,4,5-TRICHLOROPHENOL	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	2,4,5-TRICHLOROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	2,4,5-TRICHLOROPHENOL	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	2,4,5-TRICHLOROPHENOL	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	2,4,5-TRICHLOROPHENOL	1800	U	UG/KG		1800	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
NITROBENZENE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	NITROBENZENE	800	U	UG/KG	V	810	U	UG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	NITROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	NITROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	NITROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	NITROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	NITROBENZENE	780	U	UG/KG	V	790	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	NITROBENZENE	790	U	UG/KG	V	790	U	UG/KG	V	0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	NITROBENZENE	770	U	UG/KG	V	800	U	UG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	NITROBENZENE	780	U	UG/KG	V	770	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	NITROBENZENE	750	U	UG/KG	V	740	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	NITROBENZENE	810	U	UG/KG	V	840	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	NITROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	NITROBENZENE	370	U	UG/KG	V	390	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	NITROBENZENE	360	U	UG/KG	V	390	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	NITROBENZENE	400	U	UG/KG	V	400	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	NITROBENZENE	770	U	UG/KG	V	760	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	NITROBENZENE	800	U	UG/KG	V	780	U	UG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	NITROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	NITROBENZENE	790	U	UG/KG	V	780	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	NITROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	NITROBENZENE	730	U	UG/KG	V	730	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	NITROBENZENE	730	U	UG/KG		760	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	NITROBENZENE	740	U	UG/KG	V	760	U	UG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	NITROBENZENE	820	U	UG/KG	V	790	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	NITROBENZENE	730	U	UG/KG	V	750	U	UG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	NITROBENZENE	750	U	UG/KG	V	750	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	NITROBENZENE	770	U	UG/KG	V	770	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	NITROBENZENE	730	U	UG/KG	V	800	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	NITROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	NITROBENZENE	380	U	UG/KG	V	390	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	NITROBENZENE	390	U	UG/KG	V	400	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	NITROBENZENE	410	U	UG/KG	V	410	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	NITROBENZENE	420	U	UG/KG		420	U	UG/KG		0.00
B301990	03/21/90	B3019900006	NITROBENZENE	410	U	UG/KG		410	U	UG/KG		0.00
B303390	07/11/90	B3033900008	NITROBENZENE	370	U	UG/KG		370	U	UG/KG		0.00
B303490	07/12/90	B3034900008	NITROBENZENE	390	U	UG/KG		400	U	UG/KG		0.00
B303590	07/12/90	B3035900009	NITROBENZENE	380	U	UG/KG		370	U	UG/KG		0.00
B303690	07/13/90	B3036900006	NITROBENZENE	360	U	UG/KG		360	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 38/38					Percent achieving criteria*: 100.000				
3-NITROANILINE												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G12-d

Relative Percent Difference from the Mean
OU1 Subsurface Soil Semivolatile Organic Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30591	08/14/91	BH00049EBU1, BH00047EBU1	3-NITROANILINE	3900	U	UG/KG	V	3900	U	UG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	3-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	3-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	3-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	3-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	3-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	3-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	3-NITROANILINE	4000	U	UG/KG	V	4100	U	UG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	3-NITROANILINE	2000	U	UG/KG	V	2000	U	UG/KG	V	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	3-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	3-NITROANILINE	1800	U	UG/KG	V	1900	U	UG/KG	V	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	3-NITROANILINE	2000	U	UG/KG	V	1900	U	UG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	3-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	3-NITROANILINE	3900	U	UG/KG	V	3800	U	UG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	3-NITROANILINE	3800	U	UG/KG	V	3800	U	UG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	3-NITROANILINE	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	3-NITROANILINE	3600	U	UG/KG		3700	U	UG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	3-NITROANILINE	3600	U	UG/KG	V	3700	U	UG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	3-NITROANILINE	3600	U	UG/KG	V	3600	U	UG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	3-NITROANILINE	3700	U	UG/KG	V	3700	U	UG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	3-NITROANILINE	3600	U	UG/KG	V	3900	U	UG/KG	V	0.00
B300190	02/02/90	B3001900006	3-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	3-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	3-NITROANILINE	1900	U	UG/KG	V	2000	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	3-NITROANILINE	2000	U	UG/KG	V	2100	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	3-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	3-NITROANILINE	2100	U	UG/KG		2100	U	UG/KG		0.00
B303390	07/11/90	B3033900008	3-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00
B303490	07/12/90	B3034900008	3-NITROANILINE	2000	U	UG/KG		2000	U	UG/KG		0.00
B303590	07/12/90	B3035900009	3-NITROANILINE	1900	U	UG/KG		1900	U	UG/KG		0.00
B303690	07/13/90	B3036900006	3-NITROANILINE	1800	U	UG/KG		1800	U	UG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 31/31 Percent achieving criteria*: 100.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-a

Relative Percent Difference from the Mean
OU1 Surface Water Pesticide/PCB Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result	Duplicate Result	Rel. % Diff.
HEPTACHLOR EPOXIDE						
SW035	10/03/90	SW00410WC, SW80051WC	HEPTACHLOR EPOXIDE	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
ENDOSULFAN SULFATE						
SW035	10/03/90	SW00410WC, SW80051WC	ENDOSULFAN SULFATE	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1260						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1260	1.0 U UG/L V	1.0 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1254						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1254	1.0 U UG/L V	1.0 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1221						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1221	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1232						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1232	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1248						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1248	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
AROCLOR-1016						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1016	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
ALDRIN						
SW035	10/03/90	SW00410WC, SW80051WC	ALDRIN	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
ALPHA-BHC						
SW035	10/03/90	SW00410WC, SW80051WC	alpha-BHC	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
BETA-BHC						
SW035	10/03/90	SW00410WC, SW80051WC	beta-BHC	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
DELTA-BHC						
SW035	10/03/90	SW00410WC, SW80051WC	delta-BHC	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
ENDOSULFAN II						

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-a

Relative Percent Difference from the Mean
OU1 Surface Water Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result	Duplicate Result	Rel. % Diff.
SW035	10/03/90	SW00410WC, SW80051WC	ENDOSULFAN II	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
4,4'-DDT						
SW035	10/03/90	SW00410WC, SW80051WC	4,4'-DDT	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
ALPHA-CHLORDANE						
SW035	10/03/90	SW00410WC, SW80051WC	alpha-CHLORDANE	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
GAMMA-CHLORDANE						
SW035	10/03/90	SW00410WC, SW80051WC	gamma-CHLORDANE	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
AROCLOR-1242						
SW035	10/03/90	SW00410WC, SW80051WC	AROCLOR-1242	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
ENDRIN KETONE						
SW035	10/03/90	SW00410WC, SW80051WC	ENDRIN KETONE	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
GAMMA-BHC (LINDANE)						
SW035	10/03/90	SW00410WC, SW80051WC	gamma-BHC (LINDANE)	0.050 U UG/L V	0.050 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
DIELDRIN						
SW035	10/03/90	SW00410WC, SW80051WC	DIELDRIN	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
ENDRIN						
SW035	10/03/90	SW00410WC, SW80051WC	ENDRIN	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
METHOXYCHLOR						
SW035	10/03/90	SW00410WC, SW80051WC	METHOXYCHLOR	0.50 U UG/L V	0.50 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
4,4'-DDD						
SW035	10/03/90	SW00410WC, SW80051WC	4,4'-DDD	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
4,4'-DDE						
SW035	10/03/90	SW00410WC, SW80051WC	4,4'-DDE	0.10 U UG/L V	0.10 U UG/L V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*: 100.000	
HEPTACHLOR						

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-a

Relative Percent Difference from the Mean
OU1 Surface Water Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	10/03/90	SW00410WC, SW80051WC	HEPTACHLOR	0.050	U	UG/L	V	0.050	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOXAPHENE												
SW035	10/03/90	SW00410WC, SW80051WC	TOXAPHENE	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ENDOSULFAN I												
SW035	10/03/90	SW00410WC, SW80051WC	ENDOSULFAN I	0.050	U	UG/L	V	0.050	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-b

Relative Percent Difference from the Mean
OU1 Surface Soil Pesticide/PCB Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
HEPTACHLOR EPOXIDE												
RA011	02/27/92	SS03021WS, SS03022WS	Heptachlor Epoxide	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ENDOSULFAN SULFATE												
RA011	02/27/92	SS03021WS, SS03022WS	Endosulfan Sulfate	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1260												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1260	170	U	UG/KG	JA	170	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1254												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1254	170	U	UG/KG	JA	170	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1221												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1221	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1232												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1232	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1248												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1248	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1016												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1016	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ALDRIN												
RA011	02/27/92	SS03021WS, SS03022WS	Aldrin	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ALPHA-BHC												
RA011	02/27/92	SS03021WS, SS03022WS	alpha-BHC	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BETA-BHC												
RA011	02/27/92	SS03021WS, SS03022WS	beta-BHC	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DELTA-BHC												
RA011	02/27/92	SS03021WS, SS03022WS	delta-BHC	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

ENDOSULFAN II

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-b

Relative Percent Difference from the Mean
OU1 Surface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	Endosulfan II	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4,4'-DDT												
RA011	02/27/92	SS03021WS, SS03022WS	4,4'-DDT	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ALPHA-CHLORDANE												
RA011	02/27/92	SS03021WS, SS03022WS	alpha-Chlordane	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
GAMMA-CHLORDANE												
RA011	02/27/92	SS03021WS, SS03022WS	gamma-Chlordane	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AROCLOR-1242												
RA011	02/27/92	SS03021WS, SS03022WS	Aroclor-1242	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ENDRIN KETONE												
RA011	02/27/92	SS03021WS, SS03022WS	Endrin Ketone	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
GAMMA-BHC (LINDANE)												
RA011	02/27/92	SS03021WS, SS03022WS	gamma-BHC (Lindane)	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
DIELDRIN												
RA011	02/27/92	SS03021WS, SS03022WS	Dieldrin	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ENDRIN												
RA011	02/27/92	SS03021WS, SS03022WS	Endrin	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
METHOXYCHLOR												
RA011	02/27/92	SS03021WS, SS03022WS	Methoxychlor	87	U	UG/KG	JA	87	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4,4'-DDD												
RA011	02/27/92	SS03021WS, SS03022WS	4,4'-DDD	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
4,4'-DDE												
RA011	02/27/92	SS03021WS, SS03022WS	4,4'-DDE	17	U	UG/KG	JA	17	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
HEPTACHLOR												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-b

Relative Percent Difference from the Mean
OU1 Surface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03022WS	Heptachlor	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOXAPHENE												
RA011	02/27/92	SS03021WS, SS03022WS	Toxaphene	170	U	UG/KG	JA	170	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ENDOSULFAN I												
RA011	02/27/92	SS03021WS, SS03022WS	Endosulfan I	8.7	U	UG/KG	JA	8.7	U	UG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
HEPTACHLOR EPOXIDE												
B300190	02/02/90	B3001900006	HEPTACHLOR EPOXIDE	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEPTACHLOR EPOXIDE	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEPTACHLOR EPOXIDE	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEPTACHLOR EPOXIDE	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEPTACHLOR EPOXIDE	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEPTACHLOR EPOXIDE	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEPTACHLOR EPOXIDE	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEPTACHLOR EPOXIDE	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEPTACHLOR EPOXIDE	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEPTACHLOR EPOXIDE	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ENDOSULFAN SULFATE												
B300190	02/02/90	B3001900006	ENDOSULFAN SULFATE	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ENDOSULFAN SULFATE	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ENDOSULFAN SULFATE	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ENDOSULFAN SULFATE	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ENDOSULFAN SULFATE	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ENDOSULFAN SULFATE	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ENDOSULFAN SULFATE	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ENDOSULFAN SULFATE	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ENDOSULFAN SULFATE	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ENDOSULFAN SULFATE	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1260												
B300190	02/02/90	B3001900006	AROCLOR-1260	180	U	UG/KG		190	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1260	180	U	UG/KG	V	190	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1260	190	U	UG/KG	V	190	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1260	200	U	UG/KG	V	200	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1260	200	U	UG/KG		200	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1260	200	U	UG/KG		200	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1260	180	U	UG/KG		180	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1260	190	U	UG/KG		190	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1260	180	U	UG/KG		180	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1260	870	U	UG/KG		170	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1254												
B300190	02/02/90	B3001900006	AROCLOR-1254	180	U	UG/KG		190	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1254	180	U	UG/KG	V	190	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1254	190	U	UG/KG	V	190	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1254	200	U	UG/KG	V	200	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1254	200	U	UG/KG		200	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1254	200	U	UG/KG		200	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1254	180	U	UG/KG		180	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1254	190	U	UG/KG		190	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900009	AROCLOR-1254	180	U	UG/KG		180	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1254	870	U	UG/KG		170	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1221												
B300190	02/02/90	B3001900006	AROCLOR-1221	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1221	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1221	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1221	98	U	UG/KG	V	99	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1221	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1221	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1221	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1221	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1221	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1221	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1232												
B300190	02/02/90	B3001900006	AROCLOR-1232	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1232	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1232	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1232	98	U	UG/KG	V	99	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1232	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1232	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1232	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1232	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1232	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1232	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1248												
B300190	02/02/90	B3001900006	AROCLOR-1248	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1248	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1248	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1248	98	U	UG/KG	V	99	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1248	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1248	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1248	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1248	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1248	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1248	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1016												
B300190	02/02/90	B3001900006	AROCLOR-1016	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1016	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1016	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1016	98	U	UG/KG	V	99	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301790	03/20/90	B3017900408	AROCLOR-1016	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1016	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1016	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1016	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1016	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1016	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ALDRIN												
B300190	02/02/90	B3001900006	ALDRIN	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ALDRIN	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ALDRIN	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ALDRIN	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ALDRIN	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ALDRIN	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ALDRIN	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ALDRIN	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ALDRIN	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ALDRIN	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ALPHA-BHC												
B300190	02/02/90	B3001900006	alpha-BHC	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	alpha-BHC	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	alpha-BHC	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	alpha-BHC	9.8	U	UG/KG	B	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	alpha-BHC	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	alpha-BHC	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	alpha-BHC	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	alpha-BHC	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	alpha-BHC	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	alpha-BHC	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
BETA-BHC												
B300190	02/02/90	B3001900006	beta-BHC	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	beta-BHC	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	beta-BHC	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	beta-BHC	9.8	U	UG/KG	B	9.9	U	UG/KG	C	0.00
B301790	03/20/90	B3017900408	beta-BHC	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	beta-BHC	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	beta-BHC	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	beta-BHC	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	beta-BHC	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	beta-BHC	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
DELTA-BHC												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300190	02/02/90	B3001900006	delta-BHC	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	delta-BHC	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	delta-BHC	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	delta-BHC	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	delta-BHC	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	delta-BHC	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	delta-BHC	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	delta-BHC	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	delta-BHC	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	delta-BHC	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ENDOSULFAN II												
B300190	02/02/90	B3001900006	ENDOSULFAN II	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ENDOSULFAN II	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ENDOSULFAN II	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ENDOSULFAN II	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ENDOSULFAN II	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ENDOSULFAN II	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ENDOSULFAN II	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ENDOSULFAN II	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ENDOSULFAN II	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ENDOSULFAN II	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
4,4'-DDT												
B300190	02/02/90	B3001900006	4,4'-DDT	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4,4'-DDT	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4,4'-DDT	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4,4'-DDT	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4,4'-DDT	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4,4'-DDT	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4,4'-DDT	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4,4'-DDT	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4,4'-DDT	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4,4'-DDT	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ALPHA-CHLORDANE												
B300190	02/02/90	B3001900006	alpha-CHLORDANE	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	alpha-CHLORDANE	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	alpha-CHLORDANE	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	alpha-CHLORDANE	98	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	alpha-CHLORDANE	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	alpha-CHLORDANE	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	alpha-CHLORDANE	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	alpha-CHLORDANE	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	alpha-CHLORDANE	90	U	UG/KG		89	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303690	07/13/90	B3036900006	alpha-CHLORDANE	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
GAMMA-CHLORDANE												
B300190	02/02/90	B3001900006	gamma-CHLORDANE	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	gamma-CHLORDANE	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	gamma-CHLORDANE	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	gamma-CHLORDANE	98	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	gamma-CHLORDANE	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	gamma-CHLORDANE	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	gamma-CHLORDANE	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	gamma-CHLORDANE	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	gamma-CHLORDANE	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	gamma-CHLORDANE	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
AROCLOR-1242												
B300190	02/02/90	B3001900006	AROCLOR-1242	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	AROCLOR-1242	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	AROCLOR-1242	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	AROCLOR-1242	98	U	UG/KG	V	99	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	AROCLOR-1242	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	AROCLOR-1242	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	AROCLOR-1242	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	AROCLOR-1242	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	AROCLOR-1242	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	AROCLOR-1242	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ENDRIN KETONE												
B300190	02/02/90	B3001900006	ENDRIN KETONE	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ENDRIN KETONE	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ENDRIN KETONE	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ENDRIN KETONE	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ENDRIN KETONE	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ENDRIN KETONE	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ENDRIN KETONE	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ENDRIN KETONE	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ENDRIN KETONE	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ENDRIN KETONE	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
GAMMA-BHC (LINDANE)												
B300190	02/02/90	B3001900006	gamma-BHC (LINDANE)	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	gamma-BHC (LINDANE)	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	gamma-BHC (LINDANE)	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	gamma-BHC (LINDANE)	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	gamma-BHC (LINDANE)	10	U	UG/KG		10	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301990	03/21/90	B3019900006	gamma-BHC (LINDANE)	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	gamma-BHC (LINDANE)	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	gamma-BHC (LINDANE)	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	gamma-BHC (LINDANE)	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	gamma-BHC (LINDANE)	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
DIELDRIN												
B300190	02/02/90	B3001900006	DIELDRIN	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	DIELDRIN	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	DIELDRIN	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	DIELDRIN	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	DIELDRIN	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	DIELDRIN	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	DIELDRIN	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	DIELDRIN	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	DIELDRIN	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	DIELDRIN	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
ENDRIN												
B300190	02/02/90	B3001900006	ENDRIN	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ENDRIN	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ENDRIN	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ENDRIN	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ENDRIN	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ENDRIN	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ENDRIN	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ENDRIN	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ENDRIN	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ENDRIN	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
METHOXYCHLOR												
B300190	02/02/90	B3001900006	METHOXYCHLOR	92	U	UG/KG		94	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	METHOXYCHLOR	91	U	UG/KG	V	94	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	METHOXYCHLOR	93	U	UG/KG	V	95	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	METHOXYCHLOR	98	U	UG/KG	V	99	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	METHOXYCHLOR	100	U	UG/KG		100	U	UG/KG		0.00
B301990	03/21/90	B3019900006	METHOXYCHLOR	99	U	UG/KG		99	U	UG/KG		0.00
B303390	07/11/90	B3033900008	METHOXYCHLOR	88	U	UG/KG		88	U	UG/KG		0.00
B303490	07/12/90	B3034900008	METHOXYCHLOR	94	U	UG/KG		95	U	UG/KG		0.00
B303590	07/12/90	B3035900009	METHOXYCHLOR	90	U	UG/KG		89	U	UG/KG		0.00
B303690	07/13/90	B3036900006	METHOXYCHLOR	440	U	UG/KG		87	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
4,4'-DDD												
B300190	02/02/90	B3001900006	4,4'-DDD	18	U	UG/KG		19	U	UG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B300790	02/09/90	B3007900004	4,4'-DDD	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4,4'-DDD	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4,4'-DDD	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4,4'-DDD	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4,4'-DDD	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4,4'-DDD	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4,4'-DDD	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4,4'-DDD	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4,4'-DDD	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
4,4'-DDE												
B300190	02/02/90	B3001900006	4,4'-DDE	18	U	UG/KG		19	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	4,4'-DDE	18	U	UG/KG	V	19	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	4,4'-DDE	19	U	UG/KG	V	19	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	4,4'-DDE	20	U	UG/KG	V	20	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	4,4'-DDE	20	U	UG/KG		20	U	UG/KG		0.00
B301990	03/21/90	B3019900006	4,4'-DDE	20	U	UG/KG		20	U	UG/KG		0.00
B303390	07/11/90	B3033900008	4,4'-DDE	18	U	UG/KG		18	U	UG/KG		0.00
B303490	07/12/90	B3034900008	4,4'-DDE	19	U	UG/KG		19	U	UG/KG		0.00
B303590	07/12/90	B3035900009	4,4'-DDE	18	U	UG/KG		18	U	UG/KG		0.00
B303690	07/13/90	B3036900006	4,4'-DDE	87	U	UG/KG		17	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
HEPTACHLOR												
B300190	02/02/90	B3001900006	HEPTACHLOR	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	HEPTACHLOR	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	HEPTACHLOR	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	HEPTACHLOR	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	HEPTACHLOR	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	HEPTACHLOR	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	HEPTACHLOR	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	HEPTACHLOR	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	HEPTACHLOR	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	HEPTACHLOR	44	U	UG/KG		8.7	U	UG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
TOXAPHENE												
B300190	02/02/90	B3001900006	TOXAPHENE	180	U	UG/KG		190	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	TOXAPHENE	180	U	UG/KG	V	190	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	TOXAPHENE	190	U	UG/KG	V	190	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	TOXAPHENE	200	U	UG/KG	V	200	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	TOXAPHENE	200	U	UG/KG		200	U	UG/KG		0.00
B301990	03/21/90	B3019900006	TOXAPHENE	200	U	UG/KG		200	U	UG/KG		0.00
B303390	07/11/90	B3033900008	TOXAPHENE	180	U	UG/KG		180	U	UG/KG		0.00
B303490	07/12/90	B3034900008	TOXAPHENE	190	U	UG/KG		190	U	UG/KG		0.00
B303590	07/12/90	B3035900009	TOXAPHENE	180	U	UG/KG		180	U	UG/KG		0.00
B303690	07/13/90	B3036900006	TOXAPHENE	870	U	UG/KG		170	U	UG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G13-c

Relative Percent Difference from the Mean
OU1 Subsurface Soil Pesticide/PCB Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
				Number achieving RPD criteria* per number of duplicate pairs: 10/10				Percent achieving criteria*: 100.000				
ENDOSULFAN I												
B300190	02/02/90	B3001900006	ENDOSULFAN I	9.2	U	UG/KG		9.4	U	UG/KG	V	0.00
B300790	02/09/90	B3007900004	ENDOSULFAN I	9.1	U	UG/KG	V	9.4	U	UG/KG	V	0.00
B301190	02/22/90	B3011900004	ENDOSULFAN I	9.3	U	UG/KG	V	9.5	U	UG/KG	V	0.00
B301490	02/26/90	B3014900812	ENDOSULFAN I	9.8	U	UG/KG	V	9.9	U	UG/KG	V	0.00
B301790	03/20/90	B3017900408	ENDOSULFAN I	10	U	UG/KG		10	U	UG/KG		0.00
B301990	03/21/90	B3019900006	ENDOSULFAN I	9.9	U	UG/KG		9.9	U	UG/KG		0.00
B303390	07/11/90	B3033900008	ENDOSULFAN I	8.8	U	UG/KG		8.8	U	UG/KG		0.00
B303490	07/12/90	B3034900008	ENDOSULFAN I	9.4	U	UG/KG		9.5	U	UG/KG		0.00
B303590	07/12/90	B3035900009	ENDOSULFAN I	9.0	U	UG/KG		8.9	U	UG/KG		0.00
B303690	07/13/90	B3036900006	ENDOSULFAN I	44	U	UG/KG		8.7	U	UG/KG		0.00
				Number achieving RPD criteria* per number of duplicate pairs: 10/10				Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
6986	03/06/91	GW00925IT, GW00927IT	ALUMINUM	87.2	B	UG/L	V	87.9	B	UG/L	V	0.80
6986	08/20/91	GW01692IT, GW01695IT	ALUMINUM	11400.00	•	UG/L	JA	23800.00	•	UG/L	JA	70.45
6886	11/25/91	GW02058IT, GW02060IT	ALUMINUM	1740.00	N*	UG/L	JA	1370.00	N*	UG/L	JA	23.79
6886	02/26/92	GW02381IT, GW02383IT	ALUMINUM	4050.00	N	UG/L	JA	1220.00	N	UG/L	JA	107.40
6886	05/15/92	GW02825IT, GW02827IT	ALUMINUM	809.00	N	UG/L	JA	789.00	N	UG/L	JA	2.50
			Number achieving RPD criteria* per number of duplicate pairs: 3/5					Percent achieving criteria*: 60.000				
IRON												
6986	03/06/91	GW00925IT, GW00927IT	IRON	16.3	B	UG/L	JA	42.1	B	UG/L	JA	88.36
6986	08/20/91	GW01692IT, GW01695IT	IRON	10600.00		UG/L	V	16600.00		UG/L	V	44.12
6886	11/25/91	GW02058IT, GW02060IT	IRON	2300.00	•	UG/L	JA	2140.00	•	UG/L	JA	7.21
6886	02/26/92	GW02381IT, GW02383IT	IRON	4710.00		UG/L	JA	1060.00		UG/L	JA	126.52
6886	05/15/92	GW02825IT, GW02827IT	IRON	1070.00		UG/L	V	1000.00		UG/L	V	6.76
			Number achieving RPD criteria* per number of duplicate pairs: 2/5					Percent achieving criteria*: 40.000				
LEAD												
6986	03/06/91	GW00925IT, GW00927IT	LEAD	2.0	U	UG/L	JA	2.0	U	UG/L	JA	0.00
6986	08/20/91	GW01692IT, GW01695IT	LEAD	13.20		UG/L	JA	27.20		UG/L	JA	69.31
6886	11/25/91	GW02058IT, GW02060IT	LEAD	3.50		UG/L	V	3.00		UG/L	V	15.38
6886	02/26/92	GW02381IT, GW02383IT	LEAD	11.50		UG/L	V	2.40	B	UG/L	V	130.94
6886	05/15/92	GW02825IT, GW02827IT	LEAD	1.70	B	UG/L	V	2.10	BW	UG/L	JA	21.05
			Number achieving RPD criteria* per number of duplicate pairs: 3/5					Percent achieving criteria*: 60.000				
LITHIUM												
6986	03/06/91	GW00925IT, GW00927IT	LITHIUM	55.6		UG/L	JA	50.0	U	UG/L	JA	10.61
6986	08/20/91	GW01692IT, GW01695IT	LITHIUM	47.00	B	UG/L	V	52.10	B	UG/L	V	10.29
6886	11/25/91	GW02058IT, GW02060IT	LITHIUM	5.10	B	UG/L	V	4.60	B	UG/L	V	10.31
6886	02/26/92	GW02381IT, GW02383IT	LITHIUM	6.40	B	UG/L	V	4.50	B	UG/L	V	34.86
6886	05/15/92	GW02825IT, GW02827IT	LITHIUM	5.40	B	UG/L	JA	5.50	B	UG/L	JA	1.83
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
MAGNESIUM												
6986	03/06/91	GW00925IT, GW00927IT	MAGNESIUM	40200		UG/L	V	40400		UG/L	V	0.50
6986	08/20/91	GW01692IT, GW01695IT	MAGNESIUM	35300.00		UG/L	V	38600.00		UG/L	V	8.93
6886	11/25/91	GW02058IT, GW02060IT	MAGNESIUM	9180.00		UG/L	V	8890.00		UG/L	V	3.21
6886	02/26/92	GW02381IT, GW02383IT	MAGNESIUM	10500.00		UG/L	V	9670.00		UG/L	V	8.23
6886	05/15/92	GW02825IT, GW02827IT	MAGNESIUM	8900.00		UG/L	V	8880.00		UG/L	V	0.22
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
MANGANESE												
6986	03/06/91	GW00925IT, GW00927IT	MANGANESE	6.0	U	UG/L	V	45.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	MANGANESE	188.00		UG/L	V	274.00		UG/L	V	37.23
6886	11/25/91	GW02058IT, GW02060IT	MANGANESE	373.00		UG/L	V	426.00		UG/L	V	13.27
6886	02/26/92	GW02381IT, GW02383IT	MANGANESE	158.00		UG/L		158.00		UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	MANGANESE	439.00		UG/L	V	454.00		UG/L	V	3.36
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				

MERCURY

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	03/06/91	GW00925IT, GW00927IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	MERCURY	0.37		UG/L	V	0.32		UG/L	V	14.49
6886	11/25/91	GW02058IT, GW02060IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
MOLYBDENUM												
6986	03/06/91	GW00925IT, GW00927IT	MOLYBDENUM	10.0	U	UG/L	JA	10.0	U	UG/L	JA	0.00
6986	08/20/91	GW01692IT, GW01695IT	MOLYBDENUM	10.30	B	UG/L	JA	10.80	B	UG/L	JA	4.74
6886	11/25/91	GW02058IT, GW02060IT	MOLYBDENUM	7.10	B	UG/L	JA	6.20	B	UG/L	JA	13.53
6886	02/26/92	GW02381IT, GW02383IT	MOLYBDENUM	2.00	U	UG/L	JA	2.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	MOLYBDENUM	3.00	U	UG/L	V	3.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
NICKEL												
6986	03/06/91	GW00925IT, GW00927IT	NICKEL	20.0	U	UG/L	V	23.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	NICKEL	32.40	B	UG/L	V	34.00	B	UG/L	V	4.82
6886	11/25/91	GW02058IT, GW02060IT	NICKEL	17.80	B	UG/L	V	17.00	U	UG/L	V	4.60
6886	02/26/92	GW02381IT, GW02383IT	NICKEL	14.70	B	UG/L	V	5.90	B	UG/L	JA	85.44
6886	05/15/92	GW02825IT, GW02827IT	NICKEL	9.90	B	UG/L	V	7.40	B	UG/L	V	28.90
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
POTASSIUM												
6986	03/06/91	GW00925IT, GW00927IT	POTASSIUM	783	B	UG/L	V	723	B	UG/L	V	7.97
6986	08/20/91	GW01692IT, GW01695IT	POTASSIUM	2490.00	B	UG/L	V	3310.00	B	UG/L	V	28.28
6886	11/25/91	GW02058IT, GW02060IT	POTASSIUM	1230.00	B	UG/L	V	1150.00	B	UG/L	V	6.72
6886	02/26/92	GW02381IT, GW02383IT	POTASSIUM	1650.00	B	UG/L	V	1080.00	B	UG/L	V	41.76
6886	05/15/92	GW02825IT, GW02827IT	POTASSIUM	1630.00	B	UG/L	V	1580.00	B	UG/L	V	3.12
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
SILICON												
6986	03/06/91	GW00925IT, GW00927IT	SILICON	7230		UG/L	V	7270		UG/L	V	0.55
6886	05/15/92	GW02825IT, GW02827IT	SILICON	9510.00		UG/L	V	9370.00		UG/L	V	1.48
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
SILVER												
6986	03/06/91	GW00925IT, GW00927IT	SILVER	23.0	U	UG/L	JA	22.2		UG/L	JA	3.54
6986	08/20/91	GW01692IT, GW01695IT	SILVER	5.70	B	UG/L	JA	3.90	B	UG/L	JA	37.50
6886	11/25/91	GW02058IT, GW02060IT	SILVER	2.90	B	UG/L	V	2.00	B	UG/L	V	36.73
6886	02/26/92	GW02381IT, GW02383IT	SILVER	3.30	B	UG/L	V	2.00	U	UG/L	V	49.06
6886	05/15/92	GW02825IT, GW02827IT	SILVER	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/5					Percent achieving criteria*: 40.000				
SODIUM												
6986	03/06/91	GW00925IT, GW00927IT	SODIUM	125000		UG/L	V	126000		UG/L	V	0.80
6986	08/20/91	GW01692IT, GW01695IT	SODIUM	109000.00		UG/L	V	111000.00		UG/L	V	1.82
6886	11/25/91	GW02058IT, GW02060IT	SODIUM	25000.00		UG/L	V	23800.00		UG/L	V	4.92

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	02/26/92	GW02381IT, GW02383IT	SODIUM	25400.00		UG/L	V	25300.00		UG/L	V	0.39
6886	05/15/92	GW02825IT, GW02827IT	SODIUM	24400.00		UG/L	V	24400.00		UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
STRONTIUM												
6986	03/06/91	GW00925IT, GW00927IT	STRONTIUM	1080		UG/L	V	1090		UG/L	JA	0.92
6986	08/20/91	GW01692IT, GW01695IT	STRONTIUM	896.00	N	UG/L	JA	948.00	N	UG/L	JA	5.64
6886	11/25/91	GW02058IT, GW02060IT	STRONTIUM	243.00		UG/L	V	235.00		UG/L	V	3.35
6886	02/26/92	GW02381IT, GW02383IT	STRONTIUM	257.00		UG/L		236.00		UG/L	V	8.52
6886	05/15/92	GW02825IT, GW02827IT	STRONTIUM	238.00		UG/L	V	237.00		UG/L	V	0.42
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
THALLIUM												
6986	03/06/91	GW00925IT, GW00927IT	THALLIUM	2.0	U	UG/L	JA	2.0	U	UG/L	JA	0.00
6986	08/20/91	GW01692IT, GW01695IT	THALLIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	THALLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	THALLIUM	2.00	UW	UG/L	JA	2.00	UW	UG/L	JA	0.00
6886	05/15/92	GW02825IT, GW02827IT	THALLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
TIN												
6986	03/06/91	GW00925IT, GW00927IT	TIN	200	U	UG/L	JA	200	U	UG/L	JA	0.00
6986	08/20/91	GW01692IT, GW01695IT	TIN	48.30	BN	UG/L	JA	53.20	BN	UG/L	JA	9.66
6886	11/25/91	GW02058IT, GW02060IT	TIN	17.00	U	UG/L	V	17.00	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	TIN	10.00	U	UG/L	V	10.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	TIN	23.00	U	UG/L	V	23.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
ANTIMONY												
6986	03/06/91	GW00925IT, GW00927IT	ANTIMONY	31.0	U	UG/L	JA	30.0	U	UG/L	JA	0.00
6986	08/20/91	GW01692IT, GW01695IT	ANTIMONY	23.00	BN	UG/L	JA	28.30	BN	UG/L	JA	20.66
6886	11/25/91	GW02058IT, GW02060IT	ANTIMONY	48.00	B	UG/L	JA	46.80	B	UG/L	JA	2.53
6886	02/26/92	GW02381IT, GW02383IT	ANTIMONY	8.00	U	UG/L	V	8.60	B	UG/L	JA	7.23
6886	05/15/92	GW02825IT, GW02827IT	ANTIMONY	18.00	U	UG/L	V	18.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
ARSENIC												
6986	03/06/91	GW00925IT, GW00927IT	ARSENIC	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	ARSENIC	2.00	B	UG/L	V	5.00	B	UG/L	JA	85.71
6886	11/25/91	GW02058IT, GW02060IT	ARSENIC	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	ARSENIC	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	ARSENIC	1.00	U	UG/L	V	1.20	B	UG/L	V	18.18
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
BARIUM												
6986	03/06/91	GW00925IT, GW00927IT	BARIUM	114	BE	UG/L	JA	115	BE	UG/L	JA	0.87
6986	08/20/91	GW01692IT, GW01695IT	BARIUM	209.00		UG/L	V	273.00		UG/L	V	26.56
6886	11/25/91	GW02058IT, GW02060IT	BARIUM	128.00	B	UG/L	V	123.00	B	UG/L	V	3.98

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	02/26/92	GW02381IT, GW02383IT	BARIUM	183.00	B	UG/L	V	126.00	B	UG/L	V	36.89
6886	05/15/92	GW02825IT, GW02827IT	BARIUM	132.00	B	UG/L	V	131.00	B	UG/L	V	0.76
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
BERYLLIUM												
6986	03/06/91	GW00925IT, GW00927IT	BERYLLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	BERYLLIUM	1.00	U	UG/L	V	1.40	B	UG/L	JA	33.33
6886	11/25/91	GW02058IT, GW02060IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
CADMIUM												
6986	03/06/91	GW00925IT, GW00927IT	CADMIUM	3.1	B	UG/L	JA	2.8	B	UG/L	JA	10.17
6986	08/20/91	GW01692IT, GW01695IT	CADMIUM	4.60	B	UG/L	JA	4.70	B	UG/L	JA	2.15
6886	11/25/91	GW02058IT, GW02060IT	CADMIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CADMIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	CADMIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
CESIUM												
6986	03/06/91	GW00925IT, GW00927IT	CESIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	CESIUM	30.0	U	UG/L	V	70.00	B	UG/L	JA	80.00
6886	11/25/91	GW02058IT, GW02060IT	CESIUM	50	U	UG/L	V	50	U	UG/L	V	0.00
6886	02/26/92	GW02381IT, GW02383IT	CESIUM	32.00	U	UG/L	V	32.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/4					Percent achieving criteria*: 75.000				
CHROMIUM												
6986	03/06/91	GW00925IT, GW00927IT	CHROMIUM	19.6		UG/L	V	21.3		UG/L	V	8.31
6986	08/20/91	GW01692IT, GW01695IT	CHROMIUM	190.00		UG/L	V	183.00		UG/L	V	3.75
6886	11/25/91	GW02058IT, GW02060IT	CHROMIUM	37.80		UG/L	V	37.20		UG/L	V	1.60
6886	02/26/92	GW02381IT, GW02383IT	CHROMIUM	111.00		UG/L	V	21.70		UG/L	V	134.59
6886	05/15/92	GW02825IT, GW02827IT	CHROMIUM	5.00	U	UG/L	JA	5.00	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
COBALT												
6986	03/06/91	GW00925IT, GW00927IT	COBALT	10.0	U	UG/L	V	10.0	U	UG/L	V	0.00
6986	08/20/91	GW01692IT, GW01695IT	COBALT	11.90	B	UG/L	JA	12.30	B	UG/L	JA	3.31
6886	11/25/91	GW02058IT, GW02060IT	COBALT	4.40	B	UG/L	V	3.20	B	UG/L	V	31.58
6886	02/26/92	GW02381IT, GW02383IT	COBALT	3.00	U	UG/L	V	3.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	COBALT	4.00	U	UG/L	V	4.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
COPPER												
6986	03/06/91	GW00925IT, GW00927IT	COPPER	18.2	B	UG/L	V	14.6	B	UG/L	V	21.95
6986	08/20/91	GW01692IT, GW01695IT	COPPER	15.80	B	UG/L	JA	17.00	B	UG/L	JA	7.32
6886	11/25/91	GW02058IT, GW02060IT	COPPER	17.90	B	UG/L	V	19.50	B	UG/L	V	8.56
6886	02/26/92	GW02381IT, GW02383IT	COPPER	19.50	B	UG/L	V	5.30	B	UG/L	JA	114.52

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	05/15/92	GW028251T, GW028271T	COPPER	10.10	B	UG/L	JA	6.70	B	UG/L	JA	40.48
			Number achieving RPD criteria* per number of duplicate pairs: 3/5					Percent achieving criteria*: 60.000				
VANADIUM												
6986	03/06/91	GW009251T, GW009271T	VANADIUM	13.6	B	UG/L	V	13.2	B	UG/L	V	2.99
6986	08/20/91	GW016921T, GW016951T	VANADIUM	32.60	B	UG/L	V	43.70	B	UG/L	V	29.10
6886	11/25/91	GW020581T, GW020601T	VANADIUM	7.20	B	UG/L	V	6.20	B	UG/L	V	14.93
6886	02/26/92	GW023811T, GW023831T	VANADIUM	14.50	B	UG/L	V	5.50	B	UG/L	JA	90.00
6886	05/15/92	GW028251T, GW028271T	VANADIUM	3.80	B	UG/L	JA	3.80	B	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
ZINC												
6986	03/06/91	GW009251T, GW009271T	ZINC	8.1	B	UG/L	V	5.0	U	UG/L	V	47.33
6986	08/20/91	GW016921T, GW016951T	ZINC	55.30		UG/L	JA	71.70		UG/L	V	25.83
6886	11/25/91	GW020581T, GW020601T	ZINC	37.30		UG/L	JA	29.30		UG/L	JA	24.02
6886	02/26/92	GW023811T, GW023831T	ZINC	63.70		UG/L	V	38.00		UG/L	V	50.54
6886	05/15/92	GW028251T, GW028271T	ZINC	23.80		UG/L	JA	17.80	B	UG/L	JA	28.85
			Number achieving RPD criteria* per number of duplicate pairs: 3/5					Percent achieving criteria*: 60.000				
CALCIUM												
6986	03/06/91	GW009251T, GW009271T	CALCIUM	141000		UG/L	V	142000		UG/L	V	0.71
6986	08/20/91	GW016921T, GW016951T	CALCIUM	121000.00		UG/L	V	126000.00		UG/L	V	4.05
6886	11/25/91	GW020581T, GW020601T	CALCIUM	40900.00		UG/L	V	39500.00		UG/L	V	3.48
6886	02/26/92	GW023811T, GW023831T	CALCIUM	45200.00		UG/L	V	42700.00		UG/L	V	5.69
6886	05/15/92	GW028251T, GW028271T	CALCIUM	38800.00		UG/L	V	38600.00		UG/L	V	0.52
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				
SELENIUM												
6986	03/06/91	GW009251T, GW009271T	SELENIUM	141		UG/L	V	170		UG/L	V	18.65
6986	08/20/91	GW016921T, GW016951T	SELENIUM	104.00	S	UG/L	V	104.00		UG/L	V	0.00
6886	11/25/91	GW020581T, GW020601T	SELENIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	02/26/92	GW023811T, GW023831T	SELENIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW028251T, GW028271T	SELENIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/5					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
SW029	09/12/90	SW00311WC, SW80042WC	ALUMINUM	324.00	•	UG/L		663.00	•	UG/L		68.69
SW029	04/02/92	SW01875WC, SW80190WC	ALUMINUM	797		UG/L	V	626		UG/L	V	24.03
SW033	08/07/91	SW01438WC, SW80145WC	ALUMINUM	131		UG/L	JA	128		UG/L	JA	2.32
SW034	01/15/90	SW03490001, SW03490001D	ALUMINUM	183.0		UG/L		186		UG/L	V	1.63
SW034	11/07/90	SW00506WC, SW80065WC	ALUMINUM	5810		UG/L	JA	6860		UG/L	JA	16.57
SW034	12/04/90	SW00610WC, SW80073WC	ALUMINUM	1010		UG/L	JA	33.9	B	UG/L	JA	187.01
SW034	04/04/91	SW01020WC, SW80107WC	ALUMINUM	143		UG/L		341		UG/L		81.82
SW035	07/19/90	SW00141WC, SW80016WC	ALUMINUM	345.00	E	UG/L		516.00	E	UG/L		39.72
SW035	10/03/90	SW00410WC, SW80051WC	ALUMINUM	3970.00		UG/L		2320.00		UG/L		52.46
SW035	04/08/91	SW01025WC, SW80109WC	ALUMINUM	4960		UG/L		3310		UG/L		39.90
SW035	05/14/91	SW01132WC, SW80123WC	ALUMINUM	322		UG/L	V	776		UG/L	V	82.70
SW038	12/11/90	SW00624WC, SW80081WC	ALUMINUM	51.60	B	UG/L		58.90	B	UG/L		13.21
SW039	06/07/90	SW00058WC, SW00059WC	ALUMINUM	200	U	UG/L		200	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ALUMINUM	103.00	B	UG/L		106.00	B	UG/L		2.87
SW068	03/19/91	SW00929WC, SW80095WC	ALUMINUM	114		UG/L	JA	81.5		UG/L	JA	33.25
SW069	08/20/90	SW00248WC, SW80035WC	ALUMINUM	309.00		UG/L		427.00		UG/L		32.07
			Number achieving RPD criteria* per number of duplicate pairs: 7/16					Percent achieving criteria*: 43.750				
IRON												
SW029	09/12/90	SW00311WC, SW80042WC	IRON	697.00	•	UG/L		946.00	*	UG/L		30.31
SW029	04/02/92	SW01875WC, SW80190WC	IRON	650		UG/L	V	601		UG/L	V	7.83
SW033	08/07/91	SW01438WC, SW80145WC	IRON	577		UG/L	V	503		UG/L	V	13.70
SW034	01/15/90	SW03490001, SW03490001D	IRON	180.0		UG/L		199	UJ	UG/L	A	10.03
SW034	11/07/90	SW00506WC, SW80065WC	IRON	4890		UG/L	V	5980		UG/L	V	20.06
SW034	12/04/90	SW00610WC, SW80073WC	IRON	1030		UG/L	V	36.0	B	UG/L	JA	186.49
SW034	04/04/91	SW01020WC, SW80107WC	IRON	188		UG/L		310		UG/L		49.00
SW035	07/19/90	SW00141WC, SW80016WC	IRON	760.00		UG/L		806.00		UG/L		5.87
SW035	10/03/90	SW00410WC, SW80051WC	IRON	3550.00		UG/L		2180.00		UG/L		47.82
SW035	04/08/91	SW01025WC, SW80109WC	IRON	4700		UG/L		3300		UG/L		35.00
SW035	05/14/91	SW01132WC, SW80123WC	IRON	531		UG/L	V	1010		UG/L	V	62.17
SW038	12/11/90	SW00624WC, SW80081WC	IRON	80.10	B	UG/L		74.00	B	UG/L		7.92
SW039	06/07/90	SW00058WC, SW00059WC	IRON	208		UG/L		353		UG/L		51.69
SW068	12/10/90	SW00621WC, SW80079WC	IRON	170.00		UG/L		131.00		UG/L		25.91
SW068	03/19/91	SW00929WC, SW80095WC	IRON	248		UG/L	V	246		UG/L	V	0.81
SW069	08/20/90	SW00248WC, SW80035WC	IRON	386.00		UG/L		449.00		UG/L		15.09
			Number achieving RPD criteria* per number of duplicate pairs: 9/16					Percent achieving criteria*: 56.250				
LEAD												
SW029	09/12/90	SW00311WC, SW80042WC	LEAD	1.60	B	UG/L		1.40	B	UG/L		13.33
SW029	04/02/92	SW01875WC, SW80190WC	LEAD	1.2	U	UG/L	V	1.2	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	LEAD	1.3	U	UG/L	V	1.3	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	LEAD	2.1		UG/L		2.9	UJ	UG/L	A	32.00
SW034	11/07/90	SW00506WC, SW80065WC	LEAD	3.6		UG/L	JA	6.4		UG/L	V	56.00
SW034	12/04/90	SW00610WC, SW80073WC	LEAD	1.2	B	UG/L	V	1.0	U	UG/L	V	18.18
SW034	04/04/91	SW01020WC, SW80107WC	LEAD	3.5		UG/L		6.0		UG/L		52.63
SW035	07/19/90	SW00141WC, SW80016WC	LEAD	1.40	B	UG/L		1.40	B	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	LEAD	7.60		UG/L		4.70		UG/L		47.15

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	04/08/91	SW01025WC, SW80109WC	LEAD	17.7		UG/L		11.8		UG/L		40.00
SW035	05/14/91	SW01132WC, SW80123WC	LEAD	2.0		UG/L	V	1.7		UG/L	JA	16.22
SW038	12/11/90	SW00624WC, SW80081WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	LEAD	3.0	U	UG/L		3.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	LEAD	1.00	UW	UG/L		1.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	LEAD	2.2		UG/L	JA	1.5		UG/L	JA	37.84
SW069	08/20/90	SW00248WC, SW80035WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
		Number achieving RPD criteria* per number of duplicate pairs: 10/16						Percent achieving criteria*: 62.500				
LITHIUM												
SW029	09/12/90	SW00311WC, SW80042WC	LITHIUM	1.00	U	UG/L		10.00	B	UG/L		163.64
SW029	04/02/92	SW01875WC, SW80190WC	LITHIUM	2.0	U	UG/L	V	3.9		UG/L	JA	64.41
SW033	08/07/91	SW01438WC, SW80145WC	LITHIUM	5.4	U	UG/L	V	5.4	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	LITHIUM	9.0		UG/L		9.0	J	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	LITHIUM	10.0	U	UG/L	V	10.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	LITHIUM	11.4	B	UG/L	JA	10.0	U	UG/L	V	13.08
SW034	04/04/91	SW01020WC, SW80107WC	LITHIUM	6.4		UG/L		6.2		UG/L		3.17
SW035	07/19/90	SW00141WC, SW80016WC	LITHIUM	7.90	B	UG/L		8.20	B	UG/L		3.73
SW035	10/03/90	SW00410WC, SW80051WC	LITHIUM	6.10	B	UG/L		6.00	B	UG/L		1.65
SW035	04/08/91	SW01025WC, SW80109WC	LITHIUM	7.5		UG/L		6.0		UG/L		22.22
SW035	05/14/91	SW01132WC, SW80123WC	LITHIUM	10.1		UG/L	JA	13.1		UG/L	JA	25.86
SW038	12/11/90	SW00624WC, SW80081WC	LITHIUM	9.70	B	UG/L		9.70	B	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	LITHIUM	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	LITHIUM	7.30	B	UG/L		8.50	B	UG/L		15.19
SW068	03/19/91	SW00929WC, SW80095WC	LITHIUM	7.6		UG/L	V	8.1		UG/L	V	6.37
SW069	08/20/90	SW00248WC, SW80035WC	LITHIUM	8.10	B	UG/L		8.00	B	UG/L		1.24
		Number achieving RPD criteria* per number of duplicate pairs: 14/16						Percent achieving criteria*: 87.500				
MAGNESIUM												
SW029	09/12/90	SW00311WC, SW80042WC	MAGNESIUM	7560.00		UG/L		7670.00		UG/L		1.44
SW029	04/02/92	SW01875WC, SW80190WC	MAGNESIUM	7210		UG/L	V	7130		UG/L	V	1.12
SW033	08/07/91	SW01438WC, SW80145WC	MAGNESIUM	6010		UG/L	V	6270		UG/L	V	4.23
SW034	01/15/90	SW03490001, SW03490001D	MAGNESIUM	6480.0		UG/L		6730		UG/L	V	3.79
SW034	11/07/90	SW00506WC, SW80065WC	MAGNESIUM	7980		UG/L	JA	8310		UG/L	JA	4.05
SW034	12/04/90	SW00610WC, SW80073WC	MAGNESIUM	6700		UG/L	JA	46.2	B	UG/L	JA	197.26
SW034	04/04/91	SW01020WC, SW80107WC	MAGNESIUM	6440		UG/L		6180		UG/L		4.12
SW035	07/19/90	SW00141WC, SW80016WC	MAGNESIUM	12000.00		UG/L		12200.00		UG/L		1.65
SW035	10/03/90	SW00410WC, SW80051WC	MAGNESIUM	9700.00		UG/L		9170.00		UG/L		5.62
SW035	04/08/91	SW01025WC, SW80109WC	MAGNESIUM	4970		UG/L		4710		UG/L		5.37
SW035	05/14/91	SW01132WC, SW80123WC	MAGNESIUM	16000		UG/L	V	17000		UG/L	V	6.06
SW038	12/11/90	SW00624WC, SW80081WC	MAGNESIUM	20700.00		UG/L		20600.00		UG/L		0.48
SW039	06/07/90	SW00058WC, SW00059WC	MAGNESIUM	5380		UG/L		5630		UG/L		4.54
SW068	12/10/90	SW00621WC, SW80079WC	MAGNESIUM	16800.00		UG/L		17200.00		UG/L		2.35
SW068	03/19/91	SW00929WC, SW80095WC	MAGNESIUM	12900		UG/L	V	12700		UG/L	V	1.56
SW069	08/20/90	SW00248WC, SW80035WC	MAGNESIUM	15600.00		UG/L		15600.00		UG/L		0.00
		Number achieving RPD criteria* per number of duplicate pairs: 15/16						Percent achieving criteria*: 93.750				

MANGANESE

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	09/12/90	SW00311WC, SW80042WC	MANGANESE	70.00		UG/L		73.70		UG/L		5.15
SW029	04/02/92	SW01875WC, SW80190WC	MANGANESE	34.5		UG/L	V	35.1		UG/L	V	1.72
SW033	08/07/91	SW01438WC, SW80145WC	MANGANESE	33.0		UG/L		27.5		UG/L	V	18.18
SW034	01/15/90	SW03490001, SW03490001D	MANGANESE	10.0	U	UG/L		7.1		UG/L	V	33.92
SW034	11/07/90	SW00506WC, SW80065WC	MANGANESE	59.6		UG/L	V	93.5		UG/L	V	44.28
SW034	12/04/90	SW00610WC, SW80073WC	MANGANESE	34.6		UG/L	V	2.7	B	UG/L	JA	171.05
SW034	04/04/91	SW01020WC, SW80107WC	MANGANESE	7.8		UG/L		8.1		UG/L		3.77
SW035	07/19/90	SW00141WC, SW80016WC	MANGANESE	191.00	E	UG/L		188.00	E	UG/L		1.58
SW035	10/03/90	SW00410WC, SW80051WC	MANGANESE	141.00		UG/L		127.00		UG/L		10.45
SW035	04/08/91	SW01025WC, SW80109WC	MANGANESE	83.3		UG/L		73.9		UG/L		11.96
SW035	05/14/91	SW01132WC, SW80123WC	MANGANESE	66.2		UG/L	V	98.5		UG/L	V	39.22
SW038	12/11/90	SW00624WC, SW80081WC	MANGANESE	8.60	B	UG/L		8.60	B	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	MANGANESE	15.9		UG/L		18.6		UG/L		15.65
SW068	12/10/90	SW00621WC, SW80079WC	MANGANESE	6.30	B	UG/L		8.20	B	UG/L		26.21
SW068	03/19/91	SW00929WC, SW80095WC	MANGANESE	23.4		UG/L	V	22.3		UG/L	V	4.81
SW069	08/20/90	SW00248WC, SW80035WC	MANGANESE	25.40		UG/L		28.70		UG/L		12.20
			Number achieving RPD criteria* per number of duplicate pairs: 12/16					Percent achieving criteria*: 75.000				
MERCURY												
SW029	09/12/90	SW00311WC, SW80042WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	MERCURY	0.2	U	UG/L		0.20	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MERCURY	0.20	U	UG/L	JA	0.20	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/14					Percent achieving criteria*: 100.000				
MOLYBDENUM												
SW029	09/12/90	SW00311WC, SW80042WC	MOLYBDENUM	2.10	B	UG/L		2.00	U	UG/L		4.88
SW029	04/02/92	SW01875WC, SW80190WC	MOLYBDENUM	3.5	U	UG/L	V	3.5	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	MOLYBDENUM	10.0	U	UG/L	V	10.0	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	MOLYBDENUM	500.0	U	UG/L		20.5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	MOLYBDENUM	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	MOLYBDENUM	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	MOLYBDENUM	10.9	U	UG/L		10.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	MOLYBDENUM	6.60	B	UG/L		6.60	B	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	MOLYBDENUM	5.70	B	UG/L		4.50	B	UG/L		23.53
SW035	04/08/91	SW01025WC, SW80109WC	MOLYBDENUM	5.7	U	UG/L		5.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MOLYBDENUM	5.7	U	UG/L	V	5.7	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	MOLYBDENUM	3.60	B	UG/L		5.30	B	UG/L		38.20

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW039	06/07/90	SW00058WC, SW00059WC	MOLYBDENUM	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	MOLYBDENUM	2.50	B	UG/L		3.30	B	UG/L		27.59
SW068	03/19/91	SW00929WC, SW80095WC	MOLYBDENUM	10.9	U	UG/L	V	10.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	MOLYBDENUM	2.00	U	UG/L		2.90	B	UG/L		36.73
			Number achieving RPD criteria* per number of duplicate pairs: 14/16 Percent achieving criteria*: 87.500									
NICKEL												
SW029	09/12/90	SW00311WC, SW80042WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	NICKEL	11.2	U	UG/L	V	11.2	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	NICKEL	10.7	U	UG/L	V	10.7	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	NICKEL	20.0	U	UG/L		3.8	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	NICKEL	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	NICKEL	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	NICKEL	3.9	U	UG/L		3.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	NICKEL	8.70	B	UG/L		8.90	B	UG/L		2.27
SW035	10/03/90	SW00410WC, SW80051WC	NICKEL	7.50	B	UG/L		4.00	U	UG/L		60.87
SW035	04/08/91	SW01025WC, SW80109WC	NICKEL	14.7	U	UG/L		14.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	NICKEL	14.7	U	UG/L	V	14.7	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	NICKEL	40.0	U	UG/L		40.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	NICKEL	3.9	U	UG/L	V	3.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 15/16 Percent achieving criteria*: 93.750									
POTASSIUM												
SW029	09/12/90	SW00311WC, SW80042WC	POTASSIUM	1580.00	B	UG/L		1660.00	B	UG/L		4.94
SW029	04/02/92	SW01875WC, SW80190WC	POTASSIUM	1430		UG/L	JA	813		UG/L	JA	55.02
SW033	08/07/91	SW01438WC, SW80145WC	POTASSIUM	2410		UG/L	V	1700		UG/L		34.55
SW034	01/15/90	SW03490001, SW03490001D	POTASSIUM	1090.0		UG/L		1170		UG/L	V	7.08
SW034	11/07/90	SW00506WC, SW80065WC	POTASSIUM	2230		UG/L	JA	2520		UG/L	JA	12.21
SW034	12/04/90	SW00610WC, SW80073WC	POTASSIUM	1510	B	UG/L	JA	430	U	UG/L	JA	111.34
SW034	04/04/91	SW01020WC, SW80107WC	POTASSIUM	1120		UG/L		1180		UG/L		5.22
SW035	07/19/90	SW00141WC, SW80016WC	POTASSIUM	2300.00	B	UG/L		2350.00	B	UG/L		2.15
SW035	10/03/90	SW00410WC, SW80051WC	POTASSIUM	2470.00	B	UG/L		1940.00	B	UG/L		24.04
SW035	04/08/91	SW01025WC, SW80109WC	POTASSIUM	2440		UG/L		2520		UG/L		3.23
SW035	05/14/91	SW01132WC, SW80123WC	POTASSIUM	5580		UG/L	V	6110		UG/L	V	9.07
SW038	12/11/90	SW00624WC, SW80081WC	POTASSIUM	454.00	B	UG/L		470.00	B	UG/L		3.46
SW039	06/07/90	SW00058WC, SW00059WC	POTASSIUM	5000	U	UG/L		5000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	POTASSIUM	2690.00	BE	UG/L		2890.00	BE	UG/L		7.17
SW068	03/19/91	SW00929WC, SW80095WC	POTASSIUM	3330		UG/L	V	3310		UG/L	V	0.60
SW069	08/20/90	SW00248WC, SW80035WC	POTASSIUM	1970.00	B	UG/L		2020.00	B	UG/L		2.51
			Number achieving RPD criteria* per number of duplicate pairs: 13/16 Percent achieving criteria*: 81.250									
SILICON												
SW029	04/02/92	SW01875WC, SW80190WC	SILICON	7350		UG/L	V	6800		UG/L	V	7.77
SW033	08/07/91	SW01438WC, SW80145WC	SILICON	5850		UG/L	V	6330		UG/L	V	7.88
SW034	11/07/90	SW00506WC, SW80065WC	SILICON	21900		UG/L	V	15600		UG/L	V	33.60

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	SILICON	8980		UG/L		9160		UG/L		1.98
SW034	06/13/91	SW01230WC, SW80131WC	SILICON	11500000.0		UG/L	JA	11900		UG/L	JA	199.59
SW034	07/10/91	SW01333WC, SW80139WC	SILICON	11600		UG/L	V	10800		UG/L	JA	7.14
SW035	04/08/91	SW01025WC, SW80109WC	SILICON	12200		UG/L		9180		UG/L		28.25
SW035	05/14/91	SW01132WC, SW80123WC	SILICON	5990		UG/L	V	7080		UG/L	V	16.68
SW068	03/19/91	SW00929WC, SW80095WC	SILICON	2940		UG/L	V	3000		UG/L	V	2.02
			Number achieving RPD criteria* per number of duplicate pairs: 7/9					Percent achieving criteria*: 77.778				
SILVER												
SW029	09/12/90	SW00311WC, SW80042WC	SILVER	3.00	U	UG/L		3.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	SILVER	2.1	U	UG/L	V	2.1	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	SILVER	6.8	U	UG/L	V	6.8	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	SILVER	30.0	U	UG/L		2.8	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	SILVER	5.5		UG/L	JA	4.9		UG/L	JA	11.54
SW034	12/04/90	SW00610WC, SW80073WC	SILVER	3.2	B	UG/L	V	3.0	U	UG/L	V	6.45
SW034	04/04/91	SW01020WC, SW80107WC	SILVER	3.8	U	UG/L		3.8	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	SILVER	3.60	B	UG/L		4.10	B	UG/L		12.99
SW035	10/03/90	SW00410WC, SW80051WC	SILVER	3.20	B	UG/L		3.40	B	UG/L		6.06
SW035	04/08/91	SW01025WC, SW80109WC	SILVER	5.0	U	UG/L		5.0	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	SILVER	3.00	U	UG/L		3.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	SILVER	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	SILVER	3.00	U	UG/L		3.10	B	UG/L		3.28
SW068	03/19/91	SW00929WC, SW80095WC	SILVER	3.8	U	UG/L	V	3.8	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	SILVER	2.00	U	UG/L		2.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 15/15					Percent achieving criteria*: 100.000				
SODIUM												
SW029	09/12/90	SW00311WC, SW80042WC	SODIUM	17200.00		UG/L		17000.00		UG/L		1.17
SW029	04/02/92	SW01875WC, SW80190WC	SODIUM	19900		UG/L	V	19700		UG/L	V	1.01
SW033	08/07/91	SW01438WC, SW80145WC	SODIUM	16500		UG/L	JA	16500		UG/L	JA	0.00
SW034	01/15/90	SW03490001, SW03490001D	SODIUM	12200.0		UG/L		12600		UG/L	V	3.23
SW034	11/07/90	SW00506WC, SW80065WC	SODIUM	13300		UG/L	JA	13300		UG/L	JA	0.00
SW034	12/04/90	SW00610WC, SW80073WC	SODIUM	12400		UG/L	JA	244	B	UG/L	JA	192.28
SW034	04/04/91	SW01020WC, SW80107WC	SODIUM	12800		UG/L		12400		UG/L		3.17
SW035	07/19/90	SW00141WC, SW80016WC	SODIUM	17600.00		UG/L		17600.00		UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	SODIUM	14300.00		UG/L		13900.00		UG/L		2.84
SW035	04/08/91	SW01025WC, SW80109WC	SODIUM	13000		UG/L		12800		UG/L		1.55
SW035	05/14/91	SW01132WC, SW80123WC	SODIUM	43700		UG/L	V	53900		UG/L	V	20.90
SW038	12/11/90	SW00624WC, SW80081WC	SODIUM	16900.00		UG/L		16600.00		UG/L		1.79
SW039	06/07/90	SW00058WC, SW00059WC	SODIUM	13700		UG/L		14700		UG/L		7.04
SW068	12/10/90	SW00621WC, SW80079WC	SODIUM	34600.00		UG/L		35300.00		UG/L		2.00
SW068	03/19/91	SW00929WC, SW80095WC	SODIUM	32800		UG/L	V	32600		UG/L	V	0.61
SW069	08/20/90	SW00248WC, SW80035WC	SODIUM	28100.00		UG/L		27800.00		UG/L		1.07
			Number achieving RPD criteria* per number of duplicate pairs: 15/16					Percent achieving criteria*: 93.750				
STRONTIUM												
SW029	09/12/90	SW00311WC, SW80042WC	STRONTIUM	195.00	B	UG/L		193.00	B	UG/L		1.03
SW029	04/02/92	SW01875WC, SW80190WC	STRONTIUM	190		UG/L	V	189		UG/L	V	0.53

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW033	08/07/91	SW01438WC, SW80145WC	STRONTIUM	155		UG/L	V	162		UG/L	V	4.42
SW034	01/15/90	SW03490001, SW03490001D	STRONTIUM	198.0		UG/L		204	J	UG/L	A	2.99
SW034	11/07/90	SW00506WC, SW80065WC	STRONTIUM	215		UG/L	V	221		UG/L	V	2.75
SW034	12/04/90	SW00610WC, SW80073WC	STRONTIUM	173	B	UG/L	V	1.8	B	UG/L	V	195.88
SW034	04/04/91	SW01020WC, SW80107WC	STRONTIUM	196		UG/L		187		UG/L		4.70
SW035	07/19/90	SW00141WC, SW80016WC	STRONTIUM	368.00		UG/L		365.00		UG/L		0.82
SW035	10/03/90	SW00410WC, SW80051WC	STRONTIUM	277.00		UG/L		267.00		UG/L		3.68
SW035	04/08/91	SW01025WC, SW80109WC	STRONTIUM	137		UG/L		133		UG/L		2.96
SW035	05/14/91	SW01132WC, SW80123WC	STRONTIUM	433		UG/L	V	451		UG/L	V	4.07
SW038	12/11/90	SW00624WC, SW80081WC	STRONTIUM	543.00		UG/L		540.00		UG/L		0.55
SW039	06/07/90	SW00058WC, SW00059WC	STRONTIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	STRONTIUM	490.00		UG/L		495.00		UG/L		1.02
SW068	03/19/91	SW00929WC, SW80095WC	STRONTIUM	349		UG/L	V	347		UG/L	V	0.57
SW069	08/20/90	SW00248WC, SW80035WC	STRONTIUM	424.00		UG/L		418.00		UG/L		1.43
			Number achieving RPD criteria* per number of duplicate pairs: 15/16					Percent achieving criteria*: 93.750				
THALLIUM												
SW029	09/12/90	SW00311WC, SW80042WC	THALLIUM	3.00	U	UG/L		3.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	THALLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	THALLIUM	1.6	U	UG/L	V	1.6	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	THALLIUM	3.0	U	UG/L		1.1	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	THALLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	THALLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	THALLIUM	1.4	U	UG/L		1.4	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	THALLIUM	3.00	U	UG/L		3.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	THALLIUM	2.00	U	UG/L		2.00	UW	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	THALLIUM	1.4	U	UG/L		1.4	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	THALLIUM	1.4	U	UG/L	V	1.4	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	THALLIUM	3.00	UW	UG/L		3.00	UW	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	THALLIUM	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	THALLIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	THALLIUM	1.4	U	UG/L	JA	1.4	U	UG/L	JA	0.00
SW069	08/20/90	SW00248WC, SW80035WC	THALLIUM	1.00	UW	UG/L		1.00	UW	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
TIN												
SW029	09/12/90	SW00311WC, SW80042WC	TIN	11.00	B	UG/L		7.00	U	UG/L		44.44
SW029	04/02/92	SW01875WC, SW80190WC	TIN	9.4	U	UG/L	V	9.4	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	TIN	38.9	U	UG/L	V	38.9	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TIN	1000.0	U	UG/L		41.0	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TIN	30.0	U	UG/L	V	30.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TIN	30.0	U	UG/L	V	30.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	TIN	24.2	U	UG/L		24.2	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TIN	23.70	B	UG/L		13.30	B	UG/L		56.22
SW035	10/03/90	SW00410WC, SW80051WC	TIN	22.20	B	UG/L		23.00	B	UG/L		3.54
SW035	04/08/91	SW01025WC, SW80109WC	TIN	14.8	U	UG/L		14.8	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	TIN	15.20	B	UG/L		18.50	B	UG/L		19.58
SW039	06/07/90	SW00058WC, SW00059WC	TIN	100	U	UG/L		100	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW068	12/10/90	SW00621WC, SW80079WC	TIN	16.10	B	UG/L		15.30	B	UG/L		5.10
SW068	03/19/91	SW00929WC, SW80095WC	TIN	24.2	U	UG/L	V	24.2	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	TIN	11.40	B	UG/L		19.70	B	UG/L		53.38
			Number achieving RPD criteria* per number of duplicate pairs: 12/15					Percent achieving criteria*: 80.000				
ANTIMONY												
SW029	09/12/90	SW00311WC, SW80042WC	ANTIMONY	10.50	B	UG/L		7.50	B	UG/L		33.33
SW029	04/02/92	SW01875WC, SW80190WC	ANTIMONY	19.8	U	UG/L	V	19.8	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	ANTIMONY	42.2	U	UG/L	V	42.2	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ANTIMONY	500.0	U	UG/L		44.6	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ANTIMONY	22.0	U	UG/L	V	22.1		UG/L	V	0.45
SW034	12/04/90	SW00610WC, SW80073WC	ANTIMONY	22.0	U	UG/L	JA	22.0	U	UG/L	JA	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ANTIMONY	18.2	U	UG/L		18.2	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ANTIMONY	25.80	B	UG/L		27.00	B	UG/L		4.55
SW035	10/03/90	SW00410WC, SW80051WC	ANTIMONY	10.30	B	UG/L		7.60	B	UG/L		30.17
SW035	04/08/91	SW01025WC, SW80109WC	ANTIMONY	25.6	U	UG/L		25.6	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ANTIMONY	25.6	U	UG/L	JA	25.6	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	ANTIMONY	8.00	U	UG/L		8.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	ANTIMONY	60.0	U	UG/L		60.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ANTIMONY	7.00	U	UG/L		7.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	ANTIMONY	22.6		UG/L	JA	18.2	U	UG/L	JA	21.57
SW069	08/20/90	SW00248WC, SW80035WC	ANTIMONY	10.00	U	UG/L		10.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/16					Percent achieving criteria*: 87.500				
ARSENIC												
SW029	09/12/90	SW00311WC, SW80042WC	ARSENIC	1.00	B	UG/L		1.00	B	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	ARSENIC	1.7	U	UG/L	JA	1.7	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	ARSENIC	0.70	U	UG/L	JA	0.70	U	UG/L	JA	0.00
SW034	01/15/90	SW03490001, SW03490001D	ARSENIC	2.0	U	UG/L		1.9	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ARSENIC	1.1		UG/L	V	2.0		UG/L	V	58.06
SW034	12/04/90	SW00610WC, SW80073WC	ARSENIC	1.0	U	UG/L	JA	1.0	U	UG/L	JA	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ARSENIC	0.90	U	UG/L		0.90	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ARSENIC	1.00	B	UG/L		1.00	B	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ARSENIC	0.90	U	UG/L		0.90	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	ARSENIC	2.00	UW	UG/L		2.00	UW	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	ARSENIC	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	ARSENIC	0.90	U	UG/L	JA	0.90	U	UG/L	JA	0.00
SW069	08/20/90	SW00248WC, SW80035WC	ARSENIC	1.00	B	UG/L		1.00	B	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/15					Percent achieving criteria*: 93.333				
BARIUM												
SW029	09/12/90	SW00311WC, SW80042WC	BARIUM	91.00	B	UG/L		86.70	B	UG/L		4.84
SW029	04/02/92	SW01875WC, SW80190WC	BARIUM	70.3		UG/L	V	68.2		UG/L	V	3.03
SW033	08/07/91	SW01438WC, SW80145WC	BARIUM	60.4		UG/L		50.6		UG/L	V	17.66
SW034	01/15/90	SW03490001, SW03490001D	BARIUM	77.8		UG/L		81.4		UG/L	V	4.52
SW034	11/07/90	SW00506WC, SW80065WC	BARIUM	139		UG/L	V	163		UG/L	V	15.89

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	12/04/90	SW00610WC, SW80073WC	BARIUM	89.4	B	UG/L	V	8.5	B	UG/L	JA	165.27
SW034	04/04/91	SW01020WC, SW80107WC	BARIUM	88.7		UG/L		85.4		UG/L		3.79
SW035	07/19/90	SW00141WC, SW80016WC	BARIUM	151.00	BE	UG/L		150.00	BE	UG/L		0.66
SW035	10/03/90	SW00410WC, SW80051WC	BARIUM	278.00		UG/L		148.00	B	UG/L		61.03
SW035	04/08/91	SW01025WC, SW80109WC	BARIUM	106		UG/L		85.9		UG/L		20.95
SW035	05/14/91	SW01132WC, SW80123WC	BARIUM	134		UG/L	V	141		UG/L	V	5.09
SW038	12/11/90	SW00624WC, SW80081WC	BARIUM	173.00	B	UG/L		172.00	B	UG/L		0.58
SW039	06/07/90	SW00058WC, SW00059WC	BARIUM	200	U	UG/L		200	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BARIUM	141.00	B	UG/L		143.00	B	UG/L		1.41
SW068	03/19/91	SW00929WC, SW80095WC	BARIUM	90.0		UG/L	V	86.5		UG/L	V	3.97
SW069	08/20/90	SW00248WC, SW80035WC	BARIUM	78.90	BE	UG/L		76.70	BE	UG/L		2.83
			Number achieving RPD criteria* per number of duplicate pairs: 14/16					Percent achieving criteria*: 87.500				
BERYLLIUM												
SW029	09/12/90	SW00311WC, SW80042WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BERYLLIUM	0.70		UG/L	JA	0.70		UG/L	JA	0.00
SW033	08/07/91	SW01438WC, SW80145WC	BERYLLIUM	0.60	U	UG/L	V	0.60	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	BERYLLIUM	2.0	U	UG/L		0.80	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BERYLLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BERYLLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BERYLLIUM	0.60	U	UG/L		0.60	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BERYLLIUM	0.50	U	UG/L		0.50	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	BERYLLIUM	0.50	U	UG/L	JA	0.50	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	BERYLLIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BERYLLIUM	0.60	U	UG/L	V	0.60	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
CADMIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CADMIUM	2.3	U	UG/L	V	2.3	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	CADMIUM	4.6	U	UG/L	V	4.6	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CADMIUM	4.0	U	UG/L		2.3	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CADMIUM	5.0	U	UG/L	V	5.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CADMIUM	5.0	U	UG/L	V	5.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CADMIUM	2.7	U	UG/L		3.4		UG/L		22.95
SW035	07/19/90	SW00141WC, SW80016WC	CADMIUM	2.00	U	UG/L		2.50	B	UG/L		22.22
SW035	10/03/90	SW00410WC, SW80051WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CADMIUM	2.7	U	UG/L		2.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CADMIUM	3.3	U	UG/L	V	3.3	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	CADMIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CADMIUM	2.7	U	UG/L	V	2.7	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW069	08/20/90	SW00248WC, SW80035WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
CESIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CESIUM	92.00	U	UG/L		92.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CESIUM	1000.0	U	UG/L		1000	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CESIUM	500	U	UG/L		500	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CESIUM	147.00	U	UG/L		147.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CESIUM	92.00	U	UG/L		92.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CESIUM	500	U	UG/L		500	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CESIUM	76.00	U	UG/L		76.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	CESIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CESIUM	76.00	U	UG/L		76.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	CESIUM	147.00	U	UG/L		147.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
CHROMIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CHROMIUM	6.20	B	UG/L		5.00	U	UG/L		21.43
SW029	04/02/92	SW01875WC, SW80190WC	CHROMIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHROMIUM	5.5	U	UG/L	V	5.5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CHROMIUM	20.0	U	UG/L		8.7	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHROMIUM	7.8		UG/L	V	8.4		UG/L	V	7.41
SW034	12/04/90	SW00610WC, SW80073WC	CHROMIUM	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CHROMIUM	6.9	U	UG/L		6.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHROMIUM	6.00	U	UG/L		6.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHROMIUM	12.90		UG/L		7.10	B	UG/L		58.00
SW035	04/08/91	SW01025WC, SW80109WC	CHROMIUM	8.9		UG/L		5.6		UG/L		45.52
SW035	05/14/91	SW01132WC, SW80123WC	CHROMIUM	4.1	U	UG/L	JA	4.1	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHROMIUM	6.60	B	UG/L		9.60	B	UG/L		37.04
SW039	06/07/90	SW00058WC, SW00059WC	CHROMIUM	10.0	U	UG/L		13.8		UG/L		31.93
SW068	12/10/90	SW00621WC, SW80079WC	CHROMIUM	5.80	B	UG/L		8.60	B	UG/L		38.89
SW068	03/19/91	SW00929WC, SW80095WC	CHROMIUM	6.9	U	UG/L	V	6.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	CHROMIUM	6.00	U	UG/L		6.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 11/16					Percent achieving criteria*: 68.750				
COBALT												
SW029	09/12/90	SW00311WC, SW80042WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	COBALT	2.7	U	UG/L	V	2.7	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	COBALT	7.3	U	UG/L	V	7.3	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	COBALT	4.0	U	UG/L	V	8.9		UG/L	V	75.97
SW034	12/04/90	SW00610WC, SW80073WC	COBALT	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	COBALT	3.0	U	UG/L		3.0	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	07/19/90	SW00141WC, SW80016WC	COBALT	5.00	B	UG/L		6.00	B	UG/L		18.18
SW035	10/03/90	SW00410WC, SW80051WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	COBALT	3.7		UG/L		3.6	U	UG/L		2.74
SW035	05/14/91	SW01132WC, SW80123WC	COBALT	3.6	U	UG/L	V	3.6	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	COBALT	50.0	U	UG/L		50.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	COBALT	3.0	U	UG/L	V	3.0	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	COBALT	4.00	U	UG/L		4.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/15					Percent achieving criteria*: 93.333				
COPPER												
SW029	09/12/90	SW00311WC, SW80042WC	COPPER	2.20	B	UG/L		2.00	U	UG/L		9.52
SW029	04/02/92	SW01875WC, SW80190WC	COPPER	2.3	U	UG/L	V	2.3	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	COPPER	5.4	U	UG/L	V	5.4	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	COPPER	5.0	U	UG/L	V	19.3		UG/L	JA	117.70
SW034	12/04/90	SW00610WC, SW80073WC	COPPER	5.5	B	UG/L	V	5.4	B	UG/L	V	1.83
SW034	04/04/91	SW01020WC, SW80107WC	COPPER	2.5	U	UG/L		2.5	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	COPPER	13.30	B	UG/L		13.80	B	UG/L		3.69
SW035	10/03/90	SW00410WC, SW80051WC	COPPER	24.90	B	UG/L		18.50	B	UG/L		29.49
SW035	04/08/91	SW01025WC, SW80109WC	COPPER	26.1		UG/L		19.2		UG/L		30.46
SW035	05/14/91	SW01132WC, SW80123WC	COPPER	51.9		UG/L	V	71.0		UG/L	V	31.08
SW038	12/11/90	SW00624WC, SW80081WC	COPPER	2.00	U	UG/L		3.30	B	UG/L		49.06
SW039	06/07/90	SW00058WC, SW00059WC	COPPER	25.0	U	UG/L		25.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	COPPER	3.70	B	UG/L		4.40	B	UG/L		17.28
SW068	03/19/91	SW00929WC, SW80095WC	COPPER	2.9		UG/L	V	2.5	U	UG/L	V	14.81
SW069	08/20/90	SW00248WC, SW80035WC	COPPER	3.00	U	UG/L		3.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 11/15					Percent achieving criteria*: 73.333				
VANADIUM												
SW029	09/12/90	SW00311WC, SW80042WC	VANADIUM	6.20	B	UG/L		6.80	B	UG/L		9.23
SW029	04/02/92	SW01875WC, SW80190WC	VANADIUM	3.5	U	UG/L	V	3.5	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	VANADIUM	6.5	U	UG/L	V	6.5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	VANADIUM	10.0	U	UG/L		3.0	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	VANADIUM	15.8		UG/L	V	18.8		UG/L	V	17.34
SW034	12/04/90	SW00610WC, SW80073WC	VANADIUM	6.5	B	UG/L	V	3.0	U	UG/L	V	73.68
SW034	04/04/91	SW01020WC, SW80107WC	VANADIUM	2.0	U	UG/L		2.0	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	VANADIUM	9.00	B	UG/L		10.60	B	UG/L		16.33
SW035	10/03/90	SW00410WC, SW80051WC	VANADIUM	14.30	B	UG/L		9.00	B	UG/L		45.49
SW035	04/08/91	SW01025WC, SW80109WC	VANADIUM	14.2		UG/L		9.7		UG/L		37.66
SW035	05/14/91	SW01132WC, SW80123WC	VANADIUM	31.6		UG/L	V	45.4		UG/L	V	35.84
SW038	12/11/90	SW00624WC, SW80081WC	VANADIUM	4.10	B	UG/L		4.70	B	UG/L		13.64
SW039	06/07/90	SW00058WC, SW00059WC	VANADIUM	50.0	U	UG/L		50.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	VANADIUM	4.40	B	UG/L		5.90	B	UG/L		29.13
SW068	03/19/91	SW00929WC, SW80095WC	VANADIUM	2.4		UG/L	V	2.0	U	UG/L	V	18.18
SW069	08/20/90	SW00248WC, SW80035WC	VANADIUM	4.70	B	UG/L		5.80	B	UG/L		20.95
			Number achieving RPD criteria* per number of duplicate pairs: 12/16					Percent achieving criteria*: 75.000				
ZINC												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	09/12/90	SW00311WC, SW80042WC	ZINC	10.10	B	UG/L		12.00	B	UG/L		17.19
SW029	04/02/92	SW01875WC, SW80190WC	ZINC	4.1		UG/L	JA	4.1		UG/L	JA	0.00
SW033	08/07/91	SW01438WC, SW80145WC	ZINC	7.2	U	UG/L	V	7.2	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ZINC	40.2		UG/L		29.5	UJ	UG/L	A	30.70
SW034	11/07/90	SW00506WC, SW80065WC	ZINC	33.2		UG/L	V	69.4		UG/L	V	70.57
SW034	12/04/90	SW00610WC, SW80073WC	ZINC	13.6	B	UG/L	V	4.3	B	UG/L	V	103.91
SW034	04/04/91	SW01020WC, SW80107WC	ZINC	4.7	U	UG/L		37.1		UG/L		155.02
SW035	07/19/90	SW00141WC, SW80016WC	ZINC	37.40		UG/L		35.90		UG/L		4.09
SW035	10/03/90	SW00410WC, SW80051WC	ZINC	203.00		UG/L		144.00		UG/L		34.01
SW035	04/08/91	SW01025WC, SW80109WC	ZINC	195		UG/L		153		UG/L		24.14
SW035	05/14/91	SW01132WC, SW80123WC	ZINC	75.5		UG/L	V	91.4		UG/L	V	19.05
SW038	12/11/90	SW00624WC, SW80081WC	ZINC	10.70	B	UG/L		11.90	B	UG/L		10.62
SW039	06/07/90	SW00058WC, SW00059WC	ZINC	25.1		UG/L		20.0	U	UG/L		22.62
SW068	12/10/90	SW00621WC, SW80079WC	ZINC	24.60	E	UG/L		22.50	E	UG/L		8.92
SW068	03/19/91	SW00929WC, SW80095WC	ZINC	18.8		UG/L	V	13.6		UG/L	V	32.10
SW069	08/20/90	SW00248WC, SW80035WC	ZINC	28.60		UG/L		67.10		UG/L		80.46
			Number achieving RPD criteria* per number of duplicate pairs: 9/16					Percent achieving criteria*: 56.250				
CALCIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CALCIUM	38100.00		UG/L		38000.00		UG/L		0.26
SW029	04/02/92	SW01875WC, SW80190WC	CALCIUM	35000		UG/L	V	34700		UG/L	V	0.86
SW033	08/07/91	SW01438WC, SW80145WC	CALCIUM	28800		UG/L	V	29600		UG/L	V	2.74
SW034	01/15/90	SW03490001, SW03490001D	CALCIUM	48400.0		UG/L		50200		UG/L	V	3.65
SW034	11/07/90	SW00506WC, SW80065WC	CALCIUM	61800		UG/L	JA	63300		UG/L	JA	2.40
SW034	12/04/90	SW00610WC, SW80073WC	CALCIUM	49000		UG/L	JA	219	B	UG/L	JA	198.22
SW034	04/04/91	SW01020WC, SW80107WC	CALCIUM	49700		UG/L		47500		UG/L		4.53
SW035	07/19/90	SW00141WC, SW80016WC	CALCIUM	74700.00		UG/L		74600.00		UG/L		0.13
SW035	10/03/90	SW00410WC, SW80051WC	CALCIUM	61900.00		UG/L		58500.00		UG/L		5.65
SW035	04/08/91	SW01025WC, SW80109WC	CALCIUM	27800		UG/L		26400		UG/L		5.17
SW035	05/14/91	SW01132WC, SW80123WC	CALCIUM	82300		UG/L	V	80600		UG/L	V	2.09
SW038	12/11/90	SW00624WC, SW80081WC	CALCIUM	104000.00		UG/L		104000.00		UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	CALCIUM	25900		UG/L		26900		UG/L		3.79
SW068	12/10/90	SW00621WC, SW80079WC	CALCIUM	83700.00		UG/L		86800.00		UG/L		3.64
SW068	03/19/91	SW00929WC, SW80095WC	CALCIUM	59600		UG/L	V	58800		UG/L	V	1.35
SW069	08/20/90	SW00248WC, SW80035WC	CALCIUM	61900.00		UG/L		61300.00		UG/L		0.97
			Number achieving RPD criteria* per number of duplicate pairs: 15/16					Percent achieving criteria*: 93.750				
PHOSPHORUS												
SW034	11/07/90	SW00506WC, SW80065WC	PHOSPHORUS	148		UG/L	JA	80.0	U	UG/L	V	59.65
SW034	12/04/90	SW00610WC, SW80073WC	PHOSPHORUS	228	B	UG/L	JA	80.0	U	UG/L	V	96.10
			Number achieving RPD criteria* per number of duplicate pairs: 0/2					Percent achieving criteria*: 0.000				
SELENIUM												
SW029	09/12/90	SW00311WC, SW80042WC	SELENIUM	1.00	BW	UG/L		2.00	B	UG/L		66.67
SW029	04/02/92	SW01875WC, SW80190WC	SELENIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW033	08/07/91	SW01438WC, SW80145WC	SELENIUM	1.2	U	UG/L	V	1.2	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	SELENIUM	2.0	U	UG/L		2.2	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	SELENIUM	2.0	U	UG/L	JA	2.0	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	12/04/90	SW00610WC, SW80073WC	SELENIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	SELENIUM	1.1	U	UG/L		1.1	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	SELENIUM	1.00	UW	UG/L		1.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	SELENIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	SELENIUM	1.1	U	UG/L		1.1	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	SELENIUM	1.1	U	UG/L	JA	1.1	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	SELENIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	SELENIUM	25.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	SELENIUM	1.00	B	UG/L		1.00	B	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	SELENIUM	1.1		UG/L	V	1.1	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	SELENIUM	2.00	UW	UG/L		2.00	B	UG/L		0.00

Number achieving RPD criteria* per number of duplicate pairs: 15/16 Percent achieving criteria*: 93.750

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result		Duplicate Result		Rel. % Diff.
ALUMINUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
IRON			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
LEAD			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
LITHIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
MAGNESIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
MANGANESE			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
MERCURY			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
MOLYBDENUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
POTASSIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
SILICON								
SW046	08/08/91	SW01457WC, SW80147WC	SILICON	5620	UG/L	6060	UG/L	7.53
			Number achieving RPD criteria* per number of duplicate pairs: 1/1			Percent achieving criteria*: 100.000		
SILVER			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
SODIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
STRONTIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
THALLIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
ANTIMONY			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
ARSENIC			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		
BARIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0			Percent achieving criteria*: **********		

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result	Duplicate Result	Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
BERYLLIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
CADMIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
CESIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
CHROMIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
COBALT			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
COPPER			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
VANADIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
ZINC			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
CALCIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	
SELENIUM			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*: **********	

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-d

Relative Percent Difference from the Mean
OU1 Sediment Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
IRON												
SED028	03/18/91	SS00186WC, SS80093WC	IRON	20200		MG/KG	V	18800		MG/KG	V	7.18
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
LEAD												
SED028	03/18/91	SS00186WC, SS80093WC	LEAD	23.1		MG/KG	JA	22.3		MG/KG	JA	3.52
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
LITHIUM												
SED028	03/18/91	SS00186WC, SS80093WC	LITHIUM	13.6		MG/KG	V	14.0		MG/KG	V	2.90
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
MAGNESIUM												
SED028	03/18/91	SS00186WC, SS80093WC	MAGNESIUM	4510		MG/KG	V	4660		MG/KG	V	3.27
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
MANGANESE												
SED028	03/18/91	SS00186WC, SS80093WC	MANGANESE	268		MG/KG	V	307		MG/KG	V	13.57
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
MERCURY												
SED028	03/18/91	SS00186WC, SS80093WC	MERCURY	0.16	U	MG/KG	V	0.13	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
MOLYBDENUM												
SED028	03/18/91	SS00186WC, SS80093WC	MOLYBDENUM	2.8	U	MG/KG	V	3.5	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
NICKEL												
SED028	03/18/91	SS00186WC, SS80093WC	NICKEL	18.8		MG/KG	V	17.9		MG/KG	V	4.90
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
POTASSIUM												
SED028	03/18/91	SS00186WC, SS80093WC	POTASSIUM	2100		MG/KG	V	2230		MG/KG	V	6.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
SILICON												
SED028	03/18/91	SS00186WC, SS80093WC	SILICON	1740		MG/KG	JA	2470		MG/KG	JA	34.68
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
SILVER												
SED028	03/18/91	SS00186WC, SS80093WC	SILVER	0.98	U	MG/KG	V	1.2	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
SODIUM												
SED028	03/18/91	SS00186WC, SS80093WC	SODIUM	225		MG/KG	JA	257		MG/KG	JA	13.28
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
STRONTIUM												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-d

Relative Percent Difference from the Mean
OU1 Sediment Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	STRONTIUM	97.3		MG/KG	V	95.5		MG/KG	V	1.87
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
THALLIUM												
SED028	03/18/91	SS00186WC, SS80093WC	THALLIUM	0.44	U	MG/KG	JA	0.40	U	MG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TIN												
SED028	03/18/91	SS00186WC, SS80093WC	TIN	6.2	U	MG/KG	V	7.8	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ANTIMONY												
SED028	03/18/91	SS00186WC, SS80093WC	ANTIMONY	4.7	U	MG/KG	V	5.9	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ARSENIC												
SED028	03/18/91	SS00186WC, SS80093WC	ARSENIC	6.4		MG/KG	V	6.5		MG/KG	V	1.55
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BARIUM												
SED028	03/18/91	SS00186WC, SS80093WC	BARIUM	214		MG/KG	V	179		MG/KG	V	17.81
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BERYLLIUM												
SED028	03/18/91	SS00186WC, SS80093WC	BERYLLIUM	0.98		MG/KG	V	1.1		MG/KG	V	11.54
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CADMIUM												
SED028	03/18/91	SS00186WC, SS80093WC	CADMIUM	0.70	U	MG/KG	V	0.87	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CESIUM												
SED028	03/18/91	SS00186WC, SS80093WC	CESIUM	129	U	MG/KG	V	162	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHROMIUM												
SED028	03/18/91	SS00186WC, SS80093WC	CHROMIUM	18.3		MG/KG	V	19.0		MG/KG	V	3.75
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
COBALT												
SED028	03/18/91	SS00186WC, SS80093WC	COBALT	10		MG/KG	V	9.7		MG/KG	V	3.05
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
COPPER												
SED028	03/18/91	SS00186WC, SS80093WC	COPPER	22.5		MG/KG	V	22.9		MG/KG	V	1.76
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VANADIUM												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-d

Relative Percent Difference from the Mean
OU1 Sediment Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
SED028	03/18/91	SS00186WC, SS80093WC	VANADIUM	42.5	MG/KG	V	45.8	MG/KG	V	7.47
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
ZINC										
SED028	03/18/91	SS00186WC, SS80093WC	ZINC	94.0	MG/KG	V	87.4	MG/KG	V	7.28
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
CALCIUM										
SED028	03/18/91	SS00186WC, SS80093WC	CALCIUM	27100	MG/KG	V	26000	MG/KG	V	4.14
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
SELENIUM										
SED028	03/18/91	SS00186WC, SS80093WC	SELENIUM	0.63	MG/KG	V	0.49	MG/KG	V	25.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-e

Relative Percent Difference from the Mean
OU1 Surface Soil Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
RA011	02/27/92	SS03021WS, SS03025WS	ALUMINUM	7910		MG/KG	V	17300		MG/KG	JA	74.49
RA015	02/27/92	SS03030WS, SS03031WS	ALUMINUM	11100		MG/KG	V	8560		MG/KG	V	25.84
RA031	03/03/92	SS03050WS, SS03051WS	ALUMINUM	10700		MG/KG	V	6740		MG/KG	V	45.41
			Number achieving RPD criteria* per number of duplicate pairs: 1/3					Percent achieving criteria*: 33.333				
IRON												
RA011	02/27/92	SS03021WS, SS03025WS	IRON	14900		MG/KG	V	15400		MG/KG	JA	3.30
RA015	02/27/92	SS03030WS, SS03031WS	IRON	20600		MG/KG	V	14000		MG/KG	V	38.15
RA031	03/03/92	SS03050WS, SS03051WS	IRON	13800		MG/KG	V	12700		MG/KG	V	8.30
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
LEAD												
RA011	02/27/92	SS03021WS, SS03025WS	LEAD	20.1		MG/KG	V	27.7		MG/KG	JA	31.80
RA015	02/27/92	SS03030WS, SS03031WS	LEAD	22.1		MG/KG	V	2.1	U	MG/KG	V	165.29
RA031	03/03/92	SS03050WS, SS03051WS	LEAD	32.3		MG/KG	V	34.1		MG/KG	V	5.42
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
LITHIUM												
RA011	02/27/92	SS03021WS, SS03025WS	LITHIUM	5.5	B	MG/KG	JA	10.3	B	MG/KG	JA	60.76
RA015	02/27/92	SS03030WS, SS03031WS	LITHIUM	9.3	B	MG/KG	JA	8.7	B	MG/KG	JA	6.67
RA031	03/03/92	SS03050WS, SS03051WS	LITHIUM	6.4	B	MG/KG	JA	2.8	B	MG/KG	JA	78.26
			Number achieving RPD criteria* per number of duplicate pairs: 1/3					Percent achieving criteria*: 33.333				
MAGNESIUM												
RA011	02/27/92	SS03021WS, SS03025WS	MAGNESIUM	2650		MG/KG	V	3580		MG/KG	JA	29.86
RA015	02/27/92	SS03030WS, SS03031WS	MAGNESIUM	2830		MG/KG	V	2430		MG/KG	V	15.21
RA031	03/03/92	SS03050WS, SS03051WS	MAGNESIUM	2520		MG/KG	V	1990		MG/KG	V	23.50
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
MANGANESE												
RA011	02/27/92	SS03021WS, SS03025WS	MANGANESE	193		MG/KG	V	184		MG/KG	JA	4.77
RA015	02/27/92	SS03030WS, SS03031WS	MANGANESE	411		MG/KG	V	310		MG/KG	V	28.02
RA031	03/03/92	SS03050WS, SS03051WS	MANGANESE	246		MG/KG	V	236		MG/KG	V	4.15
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
MERCURY												
RA011	02/27/92	SS03021WS, SS03025WS	MERCURY	.06	B	MG/KG	V	.07	B	MG/KG	JA	15.38
RA015	02/27/92	SS03030WS, SS03031WS	MERCURY	.06	U	MG/KG	V	.06	U	MG/KG	V	0.00
RA031	03/03/92	SS03050WS, SS03051WS	MERCURY	.06	B	MG/KG	JA	.06	U	MG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
MOLYBDENUM												
RA011	02/27/92	SS03021WS, SS03025WS	MOLYBDENUM	1.5	U	MG/KG	JA	1.4	U	MG/KG	JA	0.00
RA015	02/27/92	SS03032WS, SS03031WS	MOLYBDENUM	2.8	B	MG/KG	JA	2.2	B	MG/KG	JA	24.00
RA031	03/03/92	SS03050WS, SS03051WS	MOLYBDENUM	4.9	B	MG/KG	JA	4.6	B	MG/KG	JA	6.32
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
NICKEL												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-e

Relative Percent Difference from the Mean
OU1 Surface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03025WS	NICKEL	13.4		MG/KG	V	17.1		MG/KG	JA	24.26
RA015	02/27/92	SS03030WS, SS03031WS	NICKEL	13.8		MG/KG	V	13.5		MG/KG	V	2.20
RA031	03/03/92	SS03050WS, SS03051WS	NICKEL	101		MG/KG	V	58.5		MG/KG	V	53.29
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
POTASSIUM												
RA011	02/27/92	SS03021WS, SS03025WS	POTASSIUM	1880		MG/KG	JA	3100		MG/KG	JA	49.00
RA015	02/27/92	SS03030WS, SS03031WS	POTASSIUM	3380		MG/KG	JA	2630		MG/KG	JA	24.96
RA031	03/03/92	SS03050WS, SS03051WS	POTASSIUM	2500		MG/KG	V	2430		MG/KG	V	2.84
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
SILICON												
RA011	02/27/92	SS03021WS, SS03025WS	SILICON	289		MG/KG	JA	48.6		MG/KG	JA	142.42
RA015	02/27/92	SS03030WS, SS03031WS	SILICON	798		MG/KG	JA	137		MG/KG	JA	141.39
RA031	03/03/92	SS03050WS, SS03051WS	SILICON	1450		MG/KG	JA	1540		MG/KG	JA	6.02
			Number achieving RPD criteria* per number of duplicate pairs: 1/3					Percent achieving criteria*: 33.333				
SILVER												
RA011	02/27/92	SS03021WS, SS03025WS	SILVER	1.1	U	MG/KG	V	1	U	MG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	SILVER	1	U	MG/KG	V	1.1	U	MG/KG	V	0.00
RA031	03/03/92	SS03050WS, SS03051WS	SILVER	1.1	U	MG/KG	V	1.1	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
SODIUM												
RA011	02/27/92	SS03021WS, SS03025WS	SODIUM	105	B	MG/KG	JA	162	B	MG/KG	JA	42.70
RA015	02/27/92	SS03030WS, SS03031WS	SODIUM	116	B	MG/KG	JA	107	B	MG/KG	JA	8.07
RA031	03/03/92	SS03050WS, SS03051WS	SODIUM	232	B	MG/KG	V	223	B	MG/KG	V	3.96
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
STRONTIUM												
RA011	02/27/92	SS03021WS, SS03025WS	STRONTIUM	60.3		MG/KG	JA	71.9		MG/KG	JA	17.55
RA015	02/27/92	SS03030WS, SS03031WS	STRONTIUM	44.2		MG/KG	JA	35.6	B	MG/KG	JA	21.55
RA031	03/03/92	SS03050WS, SS03051WS	STRONTIUM	27.8	B	MG/KG	JA	23.8	B	MG/KG	JA	15.50
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
THALLIUM												
RA011	02/27/92	SS03021WS, SS03025WS	THALLIUM	.21	U	MG/KG	V	.27	B	MG/KG	JA	25.00
RA015	02/27/92	SS03030WS, SS03031WS	THALLIUM	.21	B	MG/KG	V	.21	U	MG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	THALLIUM	.21	U	MG/KG	V	.21	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
TIN												
RA011	02/27/92	SS03021WS, SS03025WS	TIN	40.6	B	MG/KG	JA	52.9		MG/KG	JA	26.31
RA015	02/27/92	SS03030WS, SS03031WS	TIN	47.6		MG/KG	JA	28.7	U	MG/KG	JA	49.54
RA031	03/03/92	SS03050WS, SS03051WS	TIN	49.6		MG/KG	JA	28.7	U	MG/KG	JA	53.38
			Number achieving RPD criteria* per number of duplicate pairs: 1/3					Percent achieving criteria*: 33.333				
ANTIMONY												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-e

Relative Percent Difference from the Mean
OU1 Surface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA011	02/27/92	SS03021WS, SS03025WS	ANTIMONY	9.2	U	MG/KG	V	8.4	U	MG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	ANTIMONY	8.8	U	MG/KG	V	8.9	U	MG/KG	V	0.00
RA031	03/03/92	SS03050WS, SS03051WS	ANTIMONY	8.8	U	MG/KG	V	8.9	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ARSENIC												
RA011	02/27/92	SS03021WS, SS03025WS	ARSENIC	3.7		MG/KG	JA	4.7	B	MG/KG	JA	23.81
RA015	02/27/92	SS03030WS, SS03031WS	ARSENIC	3.6		MG/KG	JA	.21	U	MG/KG	V	177.95
RA031	03/03/92	SS03050WS, SS03051WS	ARSENIC	5		MG/KG	JA	3.6		MG/KG	JA	32.56
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
BARIUM												
RA011	02/27/92	SS03021WS, SS03025WS	BARIUM	167		MG/KG	V	368		MG/KG	JA	75.14
RA015	02/27/92	SS03030WS, SS03031WS	BARIUM	142		MG/KG	V	130		MG/KG	V	8.82
RA031	03/03/92	SS03050WS, SS03051WS	BARIUM	105		MG/KG	V	99.5		MG/KG	V	5.38
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
BERYLLIUM												
RA011	02/27/92	SS03021WS, SS03025WS	BERYLLIUM	.6	B	MG/KG	V	1		MG/KG	JA	50.00
RA015	02/27/92	SS03030WS, SS03031WS	BERYLLIUM	.81	B	MG/KG	V	.53	B	MG/KG	V	41.79
RA031	03/03/92	SS03050WS, SS03051WS	BERYLLIUM	.6	B	MG/KG	V	.71	B	MG/KG	V	16.79
			Number achieving RPD criteria* per number of duplicate pairs: 1/3					Percent achieving criteria*: 33.333				
CADMIUM												
RA011	02/27/92	SS03021WS, SS03025WS	CADMIUM	.65	U	MG/KG	V	.6	U	MG/KG	JA	0.00
RA031	03/03/92	SS03050WS, SS03051WS	CADMIUM	.63	U	MG/KG	V	.63	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
CESIUM												
RA011	02/27/92	SS03021WS, SS03025WS	CESIUM	2.8	B	MG/KG	JA	3.5	B	MG/KG	JA	22.22
RA015	02/27/92	SS03030WS, SS03031WS	CESIUM	2.1	B	MG/KG	JA	.95	B	MG/KG	JA	75.41
RA031	03/03/92	SS03050WS, SS03051WS	CESIUM	2.1	B	MG/KG	JA	2	B	MG/KG	JA	4.88
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
CHROMIUM												
RA011	02/27/92	SS03021WS, SS03025WS	CHROMIUM	8.7		MG/KG	V	19.7		MG/KG	JA	77.46
RA015	02/27/92	SS03030WS, SS03031WS	CHROMIUM	14.2		MG/KG	V	11.9		MG/KG	V	17.62
RA031	03/03/92	SS03050WS, SS03051WS	CHROMIUM	80.5		MG/KG	JA	107		MG/KG	JA	28.27
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
COBALT												
RA011	02/27/92	SS03021WS, SS03025WS	COBALT	8.1	B	MG/KG	V	8.2	B	MG/KG	JA	1.23
RA015	02/27/92	SS03030WS, SS03031WS	COBALT	7.3	B	MG/KG	JA	6.5	B	MG/KG	V	11.59
RA031	03/03/92	SS03050WS, SS03051WS	COBALT	6.2	B	MG/KG	V	5.9	B	MG/KG	V	4.96
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
COPPER												
RA011	02/27/92	SS03021WS, SS03025WS	COPPER	14.5		MG/KG	V	16.8		MG/KG	JA	14.70

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-e

Relative Percent Difference from the Mean
OU1 Surface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
RA015	02/27/92	SS03030WS, SS03031WS	COPPER	16.1		MG/KG	V	15		MG/KG	V	7.07
RA031	03/03/92	SS03050WS, SS03051WS	COPPER	49.8		MG/KG	V	28.3		MG/KG	V	55.06
			Number achieving RPD criteria* per number of duplicate pairs: 2/3					Percent achieving criteria*: 66.667				
VANADIUM												
RA011	02/27/92	SS03021WS, SS03025WS	VANADIUM	26.4		MG/KG	V	38.9		MG/KG	JA	38.28
RA015	02/27/92	SS03030WS, SS03031WS	VANADIUM	44.6		MG/KG	V	31.2		MG/KG	V	35.36
RA031	03/03/92	SS03050WS, SS03051WS	VANADIUM	28.9		MG/KG	V	22.9		MG/KG	V	23.17
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
ZINC												
RA011	02/27/92	SS03021WS, SS03025WS	ZINC	61.5		MG/KG	JA	71.5		MG/KG	JA	15.04
RA015	02/27/92	SS03030WS, SS03031WS	ZINC	59.6		MG/KG	JA	55.5		MG/KG	JA	7.12
RA031	03/03/92	SS03050WS, SS03051WS	ZINC	93.9		MG/KG	V	106		MG/KG	V	12.11
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
CALCIUM												
RA011	02/27/92	SS03021WS, SS03025WS	CALCIUM	12800		MG/KG	V	12700		MG/KG	JA	0.78
RA015	02/27/92	SS03030WS, SS03031WS	CALCIUM	7360		MG/KG	V	5670		MG/KG	V	25.94
RA031	03/03/92	SS03050WS, SS03051WS	CALCIUM	4540		MG/KG	V	4380		MG/KG	V	3.59
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
SELENIUM												
RA011	02/27/92	SS03021WS, SS03025WS	SELENIUM	.21	U	MG/KG	V	.2	U	MG/KG	JA	0.00
RA015	02/27/92	SS03030WS, SS03031WS	SELENIUM	.44	B	MG/KG	JA	.55	B	MG/KG	JA	22.22
RA031	03/03/92	SS03050WS, SS03051WS	SELENIUM	.21	U	MG/KG	JA	.21	U	MG/KG	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ALUMINUM	11000.00		MG/KG	V	13000.00		MG/KG	V	16.67
30691	08/15/91	BH00056EBU1, BH00055EBU1	ALUMINUM	7740.00		MG/KG	V	6300.00		MG/KG	V	20.51
30791	08/16/91	BH00064EBU1, BH00063EBU1	ALUMINUM	7290.00		MG/KG	V	5230.00		MG/KG	V	32.91
30891	08/19/91	BH00073EBU1, BH00070EBU1	ALUMINUM	9560		MG/KG	JA	9630		MG/KG	JA	0.73
31091	08/20/91	BH00085EBU1, BH00084EBU1	ALUMINUM	15300		MG/KG	JA	20700		MG/KG	JA	30.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	ALUMINUM	5950		MG/KG	V	6110		MG/KG	V	2.65
31591	08/23/91	BH00106EBU1, BH00103EBU1	ALUMINUM	8200.00	•	MG/KG		8990.00	*	MG/KG		9.19
31691	08/26/91	BH00113EBU1, BH00112EBU1	ALUMINUM	7030		MG/KG	V	5120		MG/KG	V	31.44
31891	08/27/91	BH00125EBU1, BH00122EBU1	ALUMINUM	19400.00	E	MG/KG	JA	19400.00	E	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	ALUMINUM	10400.00	E	MG/KG	JA	10400.00	E	MG/KG	JA	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	ALUMINUM	11700.00		MG/KG	V	13100.00		MG/KG	V	11.29
32491	09/04/91	BH00240EBU1, BH00239EBU1	ALUMINUM	20900		MG/KG	JA	15200		MG/KG	JA	31.58
32691	09/05/91	BH00250EBU1, BH00249EBU1	ALUMINUM	13300		MG/KG	JA	13200		MG/KG	JA	0.75
32891	09/06/91	BH00258EBU1, BH00257EBU1	ALUMINUM	12200		MG/KG	JA	18400		MG/KG	JA	40.52
32991	09/06/91	BH00265EBU1, BH00264EBU1	ALUMINUM	14000		MG/KG	JA	19400		MG/KG	JA	32.34
33191	09/09/91	BH00275EBU1, BH00274EBU1	ALUMINUM	15200		MG/KG	JA	19300		MG/KG	JA	23.77
33291	09/10/91	BH00289EBU1, BH00288EBU1	ALUMINUM	17000		MG/KG	V	14000		MG/KG	V	19.35
33591	09/11/91	BH00295EBU1, BH00294EBU1	ALUMINUM	16900.00		MG/KG	V	14900.00		MG/KG	JA	12.58
33791	09/12/91	BH00356EBU1, BH00355EBU1	ALUMINUM	4700.00	E*	MG/KG	JA	3040.00	E*	MG/KG	JA	42.89
34091	09/16/91	BH00372EBU1, BH00371EBU1	ALUMINUM	14200.00	•	MG/KG	V	9740.00	•	MG/KG	V	37.26
34291	09/16/91	BH00380EBU1, BH00379EBU1	ALUMINUM	10400.00	•	MG/KG	V	13400.00	•	MG/KG	V	25.21
34491	09/17/91	BH00386EBU1, BH00385EBU1	ALUMINUM	8470.00	•	MG/KG	V	12300.00	*	MG/KG	V	36.88
34691	09/18/91	BH00392EBU1, BH00391EBU1	ALUMINUM	19700.00		MG/KG	V	20500.00		MG/KG	V	3.98
34891	09/19/91	BH00405EBU1, BH00403EBU1	ALUMINUM	9940.00	•	MG/KG	V	10400.00	•	MG/KG	V	4.52
34991	09/20/91	BH00414EBU1, BH00413EBU1	ALUMINUM	11900.00	•	MG/KG	JA	13500.00	•	MG/KG	JA	12.60
35291	09/24/91	BH00423EBU1, BH00422EBU1	ALUMINUM	10700.00		MG/KG	V	12900.00		MG/KG	V	18.64
35391	09/24/91	BH00345EBU1, BH00344EBU1	ALUMINUM	10000.00		MG/KG	V	9920.00		MG/KG	V	0.80
35491	09/24/91	BH00432EBU1, BH00431EBU1	ALUMINUM	7490.00		MG/KG	V	8840.00		MG/KG	V	16.53
35591	09/26/91	BH00437EBU1, BH00436EBU1	ALUMINUM	4940.00		MG/KG	V	3350.00		MG/KG	V	38.36
35791	09/27/91	BH00442EBU1, BH00441EBU1	ALUMINUM	11400.00		MG/KG	V	11400.00		MG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	ALUMINUM	7670.00		MG/KG	V	7740.00		MG/KG	V	0.91
36291	10/03/91	BH00471EBU1, BH00470EBU1	ALUMINUM	5500.00		MG/KG	V	6600.00		MG/KG	V	18.18
36391	10/04/91	BH00524EBU1, BH00523EBU1	ALUMINUM	7350.00		MG/KG	V	7180.00		MG/KG	V	2.34
36491	10/04/91	BH00478EBU1, BH00477EBU1	ALUMINUM	15900.00	•	MG/KG	V	12200.00	•	MG/KG	V	26.33
36591	10/07/91	BH00489EBU1, BH00488EBU1	ALUMINUM	6500.00		MG/KG	V	5350.00		MG/KG	V	19.41
36691	10/10/91	BH00544EBU1, BH00543EBU1	ALUMINUM	14700.00		MG/KG	V	14400.00		MG/KG	V	2.06
36791	10/09/91	BH00600EBU1, BH00499EBU1	ALUMINUM	8730.00		MG/KG	V	8890.00		MG/KG	V	1.82
36891	10/10/91	BH00610EBU1, BH00609EBU1	ALUMINUM	3200.00		MG/KG	V	5050.00		MG/KG	V	44.85
37091	10/14/91	BH00625EBU1, BH00624EBU1	ALUMINUM	16000.00		MG/KG	V	17200.00		MG/KG	V	7.23
37191	10/14/91	BH00561EBU1, BH00560EBU1	ALUMINUM	15500.00		MG/KG	V	14100.00		MG/KG	V	9.46
37291	10/15/91	BH00634EBU1, BH00632EBU1	ALUMINUM	9440.00		MG/KG	V	8380.00		MG/KG	V	11.90
37391	10/16/91	BH00651EBU1, BH00650EBU1	ALUMINUM	12300.00	*	MG/KG	V	18000.00	*	MG/KG	V	37.62
37491	10/16/91	BH00577EBU1, BH00576EBU1	ALUMINUM	13500.00		MG/KG		18500		MG/KG	JA	31.25
39591	11/20/91	BH00861EBU1, BH00860EBU1	ALUMINUM	7700.00		MG/KG	V	7750.00		MG/KG	V	0.65
B300190	02/02/90	B3001900006	ALUMINUM	16200	J	MG/KG	A	19400		MG/KG		17.98
B300790	02/09/90	B3007900004	ALUMINUM	14800	J	MG/KG	A	21100	J	MG/KG	A	35.10
B301190	02/22/90	B3011900004	ALUMINUM	13400		MG/KG	A	14800		MG/KG		9.93

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301490	02/26/90	B3014900812	ALUMINUM	9370		MG/KG	A	9330		MG/KG	A	0.43
B301790	03/20/90	B3017900408	ALUMINUM	19100		MG/KG		19300		MG/KG		1.04
B303390	07/11/90	B3033900008	ALUMINUM	16000		MG/KG		24700		MG/KG		42.75
B303490	07/12/90	B3034900008	ALUMINUM	9990		MG/KG		11800		MG/KG		16.61
B303590	07/12/90	B3035900009	ALUMINUM	13900		MG/KG		13600		MG/KG		2.18
			Number achieving RPD criteria* per number of duplicate pairs: 48/52					Percent achieving criteria*: 92.308				
IRON												
30591	08/14/91	BH00049EBU1, BH00047EBU1	IRON	7500.00	*	MG/KG	JA	9700.00	*	MG/KG	JA	25.58
30691	08/15/91	BH00056EBU1, BH00055EBU1	IRON	6350.00	*	MG/KG	JA	5480.00	*	MG/KG	JA	14.71
30791	08/16/91	BH00064EBU1, BH00063EBU1	IRON	10300.00	*	MG/KG	JA	13500.00	*	MG/KG	JA	26.89
30891	08/19/91	BH00073EBU1, BH00070EBU1	IRON	13300		MG/KG	V	16400		MG/KG	V	20.88
31091	08/20/91	BH00085EBU1, BH00084EBU1	IRON	20300		MG/KG	JA	24800		MG/KG	JA	19.96
31291	08/21/91	BH00094EBU1, BH00091EBU1	IRON	20600		MG/KG	V	19600		MG/KG	V	4.98
31591	08/23/91	BH00106EBU1, BH00103EBU1	IRON	13700.00	E*	MG/KG		15300.00	E*	MG/KG		11.03
31691	08/26/91	BH00113EBU1, BH00112EBU1	IRON	11100		MG/KG	V	12300		MG/KG	V	10.26
31891	08/27/91	BH00125EBU1, BH00122EBU1	IRON	20500.00	E*	MG/KG	JA	19700.00	E*	MG/KG	JA	3.98
31991	08/28/91	BH00140EBU1, BH00137EBU1	IRON	13900.00	E*	MG/KG	JA	13400.00	E*	MG/KG	JA	3.66
32191	08/30/91	BH00221EBU1, BH00219EBU1	IRON	17400.00	E	MG/KG	JA	18100.00	E	MG/KG	JA	3.94
32491	09/04/91	BH00240EBU1, BH00239EBU1	IRON	17000		MG/KG	JA	14600		MG/KG	JA	15.19
32691	09/05/91	BH00250EBU1, BH00249EBU1	IRON	11000		MG/KG	JA	10600		MG/KG	JA	3.70
32891	09/06/91	BH00258EBU1, BH00257EBU1	IRON	10600		MG/KG	JA	14800		MG/KG	JA	33.07
32991	09/06/91	BH00265EBU1, BH00264EBU1	IRON	10400		MG/KG	JA	13700		MG/KG	JA	27.39
33191	09/09/91	BH00275EBU1, BH00274EBU1	IRON	16200		MG/KG	JA	16900		MG/KG	JA	4.23
33291	09/10/91	BH00289EBU1, BH00288EBU1	IRON	13700		MG/KG	V	15900		MG/KG	V	14.86
33591	09/11/91	BH00295EBU1, BH00294EBU1	IRON	20800.00	E	MG/KG	JA	18900.00	E	MG/KG	JA	9.57
33791	09/12/91	BH00356EBU1, BH00355EBU1	IRON	6380.00	E*	MG/KG	JA	7960.00	E*	MG/KG	JA	22.04
33991	09/13/91	BH00365EBU1, BH00364EBU1	IRON	11700.00	E*	MG/KG	V	13500.00	E*	MG/KG	V	14.29
34091	09/16/91	BH00372EBU1, BH00371EBU1	IRON	18900.00	E*	MG/KG	V	13700.00	E*	MG/KG	V	31.90
34291	09/16/91	BH00380EBU1, BH00379EBU1	IRON	8950.00	E*	MG/KG	V	17200.00	E*	MG/KG	V	63.10
34491	09/17/91	BH00386EBU1, BH00385EBU1	IRON	15000.00	*	MG/KG	V	16900.00	*	MG/KG	V	11.91
34691	09/18/91	BH00392EBU1, BH00391EBU1	IRON	18300.00		MG/KG	V	17900.00		MG/KG	V	2.21
34891	09/19/91	BH00405EBU1, BH00403EBU1	IRON	14700.00	*	MG/KG	JA	18900.00	*	MG/KG	JA	25.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	IRON	14900.00	*	MG/KG	JA	15900.00	*	MG/KG	JA	6.49
35291	09/24/91	BH00423EBU1, BH00422EBU1	IRON	15000.00		MG/KG	V	16200.00		MG/KG	V	7.69
35391	09/24/91	BH00345EBU1, BH00344EBU1	IRON	14600.00		MG/KG	V	15200.00		MG/KG	V	4.03
35491	09/24/91	BH00432EBU1, BH00431EBU1	IRON	14200.00	*	MG/KG	JA	10300.00	*	MG/KG	JA	31.84
35791	09/27/91	BH00442EBU1, BH00441EBU1	IRON	16900.00	*	MG/KG	JA	15400.00	*	MG/KG	JA	9.29
35891	10/01/91	BH00451EBU1, BH00450EBU1	IRON	12600.00		MG/KG	V	10700.00		MG/KG	V	16.31
36091	10/02/91	BH00459EBU1, BH00458EBU1	IRON	10300.00	E	MG/KG	V	9840.00	E	MG/KG	V	4.57
36291	10/03/91	BH00471EBU1, BH00470EBU1	IRON	5050.00	E	MG/KG	V	8070.00	E	MG/KG	V	46.04
36391	10/04/91	BH00524EBU1, BH00523EBU1	IRON	10800.00		MG/KG	V	11600.00		MG/KG	V	7.14
36491	10/04/91	BH00478EBU1, BH00477EBU1	IRON	20400.00		MG/KG	V	16700.00		MG/KG	V	19.95
36591	10/07/91	BH00489EBU1, BH00488EBU1	IRON	7610.00		MG/KG	V	5490.00		MG/KG	V	32.37
36691	10/10/91	BH00544EBU1, BH00543EBU1	IRON	19200.00		MG/KG	V	17800.00		MG/KG	V	7.57
36791	10/09/91	BH00600EBU1, BH00499EBU1	IRON	13000.00		MG/KG	V	13200.00		MG/KG	V	1.53
36891	10/10/91	BH00610EBU1, BH00609EBU1	IRON	4580.00		MG/KG	V	13300.00		MG/KG	V	97.54
37091	10/14/91	BH00625EBU1, BH00624EBU1	IRON	16600.00		MG/KG	V	20500.00		MG/KG	V	21.02

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37191	10/14/91	BH00561EBU1, BH00560EBU1	IRON	36400.00		MG/KG	V	19100.00		MG/KG	V	62.34
37291	10/15/91	BH00634EBU1, BH00632EBU1	IRON	16600.00		MG/KG	V	12000.00		MG/KG	V	32.17
37391	10/16/91	BH00651EBU1, BH00650EBU1	IRON	16200.00		MG/KG	V	19600.00		MG/KG	V	18.99
37491	10/16/91	BH00577EBU1, BH00576EBU1	IRON	16000.00		MG/KG		15800		MG/KG	JA	1.26
39591	11/20/91	BH00861EBU1, BH00860EBU1	IRON	12500.00		MG/KG	V	12800.00		MG/KG	V	2.37
B300190	02/02/90	B3001900006	IRON	16900	J	MG/KG	A	21100		MG/KG		22.11
B300790	02/09/90	B3007900004	IRON	10600		MG/KG	V	14300		MG/KG	V	29.72
B301190	02/22/90	B3011900004	IRON	15100		MG/KG	A	17000		MG/KG		11.84
B301490	02/26/90	B3014900812	IRON	10100		MG/KG	A	12700		MG/KG	A	22.81
B301790	03/20/90	B3017900408	IRON	24400		MG/KG		24200		MG/KG		0.82
B303390	07/11/90	B3033900008	IRON	31700		MG/KG		21500		MG/KG		38.35
B303490	07/12/90	B3034900008	IRON	10600		MG/KG		12700		MG/KG		18.03
B303590	07/12/90	B3035900009	IRON	16500		MG/KG		15900		MG/KG		3.70
			Number achieving RPD criteria* per number of duplicate pairs: 49/53					Percent achieving criteria*: 92.453				
LEAD												
30591	08/14/91	BH00049EBU1, BH00047EBU1	LEAD	15.30		MG/KG	V	19.90		MG/KG	V	26.14
30691	08/15/91	BH00056EBU1, BH00055EBU1	LEAD	10.60		MG/KG	V	9.70		MG/KG	V	8.87
30791	08/16/91	BH00064EBU1, BH00063EBU1	LEAD	11.70		MG/KG	V	13.10	S	MG/KG	V	11.29
30891	08/19/91	BH00073EBU1, BH00070EBU1	LEAD	16.7		MG/KG	JA	12.5		MG/KG	JA	28.77
31091	08/20/91	BH00085EBU1, BH00084EBU1	LEAD	14.2		MG/KG	JA	13.8		MG/KG	JA	2.86
31291	08/21/91	BH00094EBU1, BH00091EBU1	LEAD	13.5		MG/KG	V	13.9		MG/KG	V	2.92
31591	08/23/91	BH00106EBU1, BH00103EBU1	LEAD	13.00		MG/KG		12.40		MG/KG		4.72
31691	08/26/91	BH00113EBU1, BH00112EBU1	LEAD	14.5		MG/KG	V	16.2		MG/KG	V	11.07
31891	08/27/91	BH00125EBU1, BH00122EBU1	LEAD	12.80	•	MG/KG	V	13.60	•	MG/KG	V	6.06
31991	08/28/91	BH00140EBU1, BH00137EBU1	LEAD	15.00	•	MG/KG	V	18.60	•	MG/KG	V	21.43
32191	08/30/91	BH00221EBU1, BH00219EBU1	LEAD	19.80		MG/KG	JA	17.90	S	MG/KG	V	10.08
32491	09/04/91	BH00240EBU1, BH00239EBU1	LEAD	19.8		MG/KG	JA	20.0		MG/KG	JA	1.01
32691	09/05/91	BH00250EBU1, BH00249EBU1	LEAD	18.5		MG/KG	JA	10.5		MG/KG	JA	55.17
32891	09/06/91	BH00258EBU1, BH00257EBU1	LEAD	16.4		MG/KG	JA	21.2		MG/KG	JA	25.53
32991	09/06/91	BH00265EBU1, BH00264EBU1	LEAD	16.8		MG/KG	JA	21.1		MG/KG	JA	22.69
33191	09/09/91	BH00275EBU1, BH00274EBU1	LEAD	26.3		MG/KG	JA	29.5		MG/KG	JA	11.47
33291	09/10/91	BH00289EBU1, BH00288EBU1	LEAD	24.3		MG/KG	V	23.9		MG/KG	V	1.66
33591	09/11/91	BH00295EBU1, BH00294EBU1	LEAD	17.30		MG/KG	JA	13.40		MG/KG	JA	25.41
33791	09/12/91	BH00356EBU1, BH00355EBU1	LEAD	3.80		MG/KG	V	4.10		MG/KG	V	7.59
33991	09/13/91	BH00365EBU1, BH00364EBU1	LEAD	16.50	N	MG/KG	JA	14.50	N	MG/KG	JA	12.90
34091	09/16/91	BH00372EBU1, BH00371EBU1	LEAD	13.20	SN	MG/KG	JA	14.20	N	MG/KG	JA	7.30
34291	09/16/91	BH00380EBU1, BH00379EBU1	LEAD	18.10	N	MG/KG	JA	22.30	N	MG/KG	JA	20.79
34491	09/17/91	BH00386EBU1, BH00385EBU1	LEAD	21.80		MG/KG	JA	22.50	S	MG/KG	JA	3.16
34691	09/18/91	BH00392EBU1, BH00391EBU1	LEAD	19.00	S	MG/KG	JA	20.90	S	MG/KG	JA	9.52
34891	09/19/91	BH00405EBU1, BH00403EBU1	LEAD	21.80	N*	MG/KG	JA	20.80	N*	MG/KG	JA	4.69
34991	09/20/91	BH00414EBU1, BH00413EBU1	LEAD	16.30		MG/KG	V	14.30		MG/KG	JA	13.07
35291	09/24/91	BH00423EBU1, BH00422EBU1	LEAD	15.70	N	MG/KG	JA	12.50	SN	MG/KG	V	22.70
35391	09/24/91	BH00345EBU1, BH00344EBU1	LEAD	12.00	SN	MG/KG	V	8.30	N	MG/KG	JA	36.45
35491	09/24/91	BH00432EBU1, BH00431EBU1	LEAD	21.30	•	MG/KG	V	19.90	S*	MG/KG	V	6.80
35591	09/26/91	BH00437EBU1, BH00436EBU1	LEAD	19.30	•	MG/KG	V	12.80	•	MG/KG	V	40.50
35791	09/27/91	BH00442EBU1, BH00441EBU1	LEAD	14.60	•	MG/KG	V	12.50	•	MG/KG	V	15.50
35891	10/01/91	BH00451EBU1, BH00450EBU1	LEAD	12.60	N	MG/KG	JA	15.00	N	MG/KG	JA	17.39

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36091	10/02/91	BH00459EBU1, BH00458EBU1	LEAD	145.00	N	MG/KG	JA	12.40	SN	MG/KG	JA	168.49
36291	10/03/91	BH00471EBU1, BH00470EBU1	LEAD	13.40	N	MG/KG	JA	15.90	N	MG/KG	JA	17.06
36391	10/04/91	BH00524EBU1, BH00523EBU1	LEAD	12.40	N	MG/KG	JA	14.00	N	MG/KG	JA	12.12
36491	10/04/91	BH00478EBU1, BH00477EBU1	LEAD	16.00		MG/KG	V	14.40		MG/KG	V	10.53
36591	10/07/91	BH00489EBU1, BH00488EBU1	LEAD	13.10	N	MG/KG	JA	17.20	N	MG/KG	JA	27.06
36691	10/10/91	BH00544EBU1, BH00543EBU1	LEAD	13.50	SN*	MG/KG	JA	18.80	SN*	MG/KG	JA	32.82
36791	10/09/91	BH00600EBU1, BH00499EBU1	LEAD	14.00		MG/KG	V	12.50		MG/KG	V	11.32
36891	10/10/91	BH00610EBU1, BH00609EBU1	LEAD	6.50		MG/KG	V	14.90		MG/KG	V	78.50
37091	10/14/91	BH00625EBU1, BH00624EBU1	LEAD	12.10	•	MG/KG	V	14.80	S*	MG/KG	V	20.07
37191	10/14/91	BH00561EBU1, BH00560EBU1	LEAD	14.10	S	MG/KG	V	12.30		MG/KG	V	13.64
37291	10/15/91	BH00634EBU1, BH00632EBU1	LEAD	19.80	•	MG/KG	V	18.70	•	MG/KG	V	5.71
37391	10/16/91	BH00651EBU1, BH00650EBU1	LEAD	15.30		MG/KG	V	14.70		MG/KG	V	4.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	LEAD	12.10		MG/KG		10.1		MG/KG	JA	18.02
39591	11/20/91	BH00861EBU1, BH00860EBU1	LEAD	17.40	N	MG/KG	JA	16.00	N	MG/KG	JA	8.38
B300190	02/02/90	B3001900006	LEAD	14.0	J	MG/KG	A	18.4		MG/KG		27.16
B300790	02/09/90	B3007900004	LEAD	14.2		MG/KG	V	16.5		MG/KG	V	14.98
B301190	02/22/90	B3011900004	LEAD	13.6		MG/KG	A	15.1		MG/KG		10.45
B301490	02/26/90	B3014900812	LEAD	16.9		MG/KG	A	14.6		MG/KG	A	14.60
B301790	03/20/90	B3017900408	LEAD	18.5		MG/KG		19.3		MG/KG		4.23
B303390	07/11/90	B3033900008	LEAD	12.8		MG/KG		15.4		MG/KG		18.44
B303490	07/12/90	B3034900008	LEAD	16.6		MG/KG		19.1		MG/KG		14.01
B303590	07/12/90	B3035900009	LEAD	24.2		MG/KG		22.5		MG/KG		7.28
			Number achieving RPD criteria* per number of duplicate pairs: 50/54					Percent achieving criteria*: 92.593				
LITHIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	LITHIUM	7.80	B	MG/KG	JA	7.80	B	MG/KG	JA	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	LITHIUM	8.10	B	MG/KG	JA	6.20	B	MG/KG	JA	26.57
30791	08/16/91	BH00064EBU1, BH00063EBU1	LITHIUM	9.20	B	MG/KG	JA	5.40	B	MG/KG	JA	52.05
30891	08/19/91	BH00073EBU1, BH00070EBU1	LITHIUM	9.6		MG/KG	JA	9.3		MG/KG	JA	3.17
31091	08/20/91	BH00085EBU1, BH00084EBU1	LITHIUM	17.9		MG/KG	JA	21.2		MG/KG	JA	16.88
31291	08/21/91	BH00094EBU1, BH00091EBU1	LITHIUM	4.7		MG/KG	JA	4.8		MG/KG	JA	2.11
31591	08/23/91	BH00106EBU1, BH00103EBU1	LITHIUM	5.70	B	MG/KG		5.80	B	MG/KG		1.74
31691	08/26/91	BH00113EBU1, BH00112EBU1	LITHIUM	6.5		MG/KG	JA	4.5		MG/KG	JA	36.36
31891	08/27/91	BH00125EBU1, BH00122EBU1	LITHIUM	14.50	B	MG/KG	JA	14.50	B	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	LITHIUM	7.10	B	MG/KG	JA	6.70	B	MG/KG	JA	5.80
32191	08/30/91	BH00221EBU1, BH00219EBU1	LITHIUM	15.70	BE	MG/KG	JA	13.40	BE	MG/KG	JA	15.81
32491	09/04/91	BH00240EBU1, BH00239EBU1	LITHIUM	17.1	B	MG/KG	JA	12.1	U	MG/KG	JA	34.25
32691	09/05/91	BH00250EBU1, BH00249EBU1	LITHIUM	11.7	U	MG/KG	JA	11.5	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	LITHIUM	10.8	U	MG/KG	JA	11.1	B	MG/KG	JA	2.74
32991	09/06/91	BH00265EBU1, BH00264EBU1	LITHIUM	11.0	U	MG/KG	JA	12.3	B	MG/KG	JA	11.16
33191	09/09/91	BH00275EBU1, BH00274EBU1	LITHIUM	12.5	B	MG/KG	JA	12.7	B	MG/KG	JA	1.59
33291	09/10/91	BH00289EBU1, BH00288EBU1	LITHIUM	12.0	U	MG/KG	JA	11.5	U	MG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	LITHIUM	15.40	BE	MG/KG	JA	13.60	BE	MG/KG	JA	12.41
33791	09/12/91	BH00356EBU1, BH00355EBU1	LITHIUM	3.00	B	MG/KG	JA	1.90	B	MG/KG	JA	44.90
33991	09/13/91	BH00365EBU1, BH00364EBU1	LITHIUM	9.70	B	MG/KG	JA	8.90	B	MG/KG	JA	8.60
34091	09/16/91	BH00372EBU1, BH00371EBU1	LITHIUM	13.50	B	MG/KG	JA	9.10	B	MG/KG	JA	38.94
34291	09/16/91	BH00380EBU1, BH00379EBU1	LITHIUM	6.60	B	MG/KG	JA	9.50	B	MG/KG	JA	36.02
34491	09/17/91	BH00386EBU1, BH00385EBU1	LITHIUM	4.80	B	MG/KG	JA	9.30	B	MG/KG	JA	63.83

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34691	09/18/91	BH00392EBU1, BH00391EBU1	LITHIUM	14.80	B	MG/KG	JA	15.50	B	MG/KG	JA	4.62
34891	09/19/91	BH00405EBU1, BH00403EBU1	LITHIUM	15.60	B	MG/KG	JA	13.70	B	MG/KG	JA	12.97
34991	09/20/91	BH00414EBU1, BH00413EBU1	LITHIUM	9.90	B	MG/KG	JA	14.10	B	MG/KG	JA	35.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	LITHIUM	9.50	B	MG/KG	JA	10.20	B	MG/KG	JA	7.11
35391	09/24/91	BH00345EBU1, BH00344EBU1	LITHIUM	6.90	B	MG/KG	JA	7.30	B	MG/KG	JA	5.63
35491	09/24/91	BH00432EBU1, BH00431EBU1	LITHIUM	7.60	B	MG/KG	JA	6.60	B	MG/KG	JA	14.08
35591	09/26/91	BH00437EBU1, BH00436EBU1	LITHIUM	3.00	B	MG/KG	JA	1.70	B	MG/KG	JA	55.32
35791	09/27/91	BH00442EBU1, BH00441EBU1	LITHIUM	9.10	B	MG/KG	JA	10.70	B	MG/KG	JA	16.16
35891	10/01/91	BH00451EBU1, BH00450EBU1	LITHIUM	5.00	B	MG/KG	JA	5.40	B	MG/KG	JA	7.69
36091	10/02/91	BH00459EBU1, BH00458EBU1	LITHIUM	8.80	B	MG/KG	JA	7.60	B	MG/KG	JA	14.63
36291	10/03/91	BH00471EBU1, BH00470EBU1	LITHIUM	3.40	B	MG/KG	JA	4.30	B	MG/KG	JA	23.38
36391	10/04/91	BH00524EBU1, BH00523EBU1	LITHIUM	5.20	B	MG/KG	JA	4.90	B	MG/KG	JA	5.94
36491	10/04/91	BH00478EBU1, BH00477EBU1	LITHIUM	14.00	B	MG/KG	JA	11.60	B	MG/KG	JA	18.75
36591	10/07/91	BH00489EBU1, BH00488EBU1	LITHIUM	6.10	B	MG/KG	JA	6.30	B	MG/KG	JA	3.23
36691	10/10/91	BH00544EBU1, BH00543EBU1	LITHIUM	12.80	B	MG/KG	JA	12.60	B	MG/KG	JA	1.57
36791	10/09/91	BH00600EBU1, BH00499EBU1	LITHIUM	5.70	B	MG/KG	JA	5.00	B	MG/KG	JA	13.08
36891	10/10/91	BH00610EBU1, BH00609EBU1	LITHIUM	1.90	B	MG/KG	JA	2.20	B	MG/KG	JA	14.63
37091	10/14/91	BH00625EBU1, BH00624EBU1	LITHIUM	17.00	B	MG/KG	V	15.80	B	MG/KG	V	7.32
37191	10/14/91	BH00561EBU1, BH00560EBU1	LITHIUM	13.90	B	MG/KG	JA	13.90	B	MG/KG	JA	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	LITHIUM	5.60	B	MG/KG	V	5.20	B	MG/KG	V	7.41
37391	10/16/91	BH00651EBU1, BH00650EBU1	LITHIUM	10.70	B	MG/KG	JA	15.90	B	MG/KG	JA	39.10
37491	10/16/91	BH00577EBU1, BH00576EBU1	LITHIUM	12.40	BE	MG/KG		12.3	B	MG/KG	JA	0.81
39591	11/20/91	BH00861EBU1, BH00860EBU1	LITHIUM	4.90	B	MG/KG	JA	4.50	B	MG/KG	JA	8.51
B300190	02/02/90	B3001900006	LITHIUM	22.6	UJ	MG/KG	A	23.0	U	MG/KG		0.00
B300790	02/09/90	B3007900004	LITHIUM	21.7	UJ	MG/KG	A	23.0	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	LITHIUM	22.9	U	MG/KG	A	22.6	U	MG/KG		0.00
B301490	02/26/90	B3014900812	LITHIUM	24.5	U	MG/KG	A	24.1	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	LITHIUM	24.3	U	MG/KG		24.3	U	MG/KG		0.00
B303390	07/11/90	B3033900008	LITHIUM	21.5	U	MG/KG		22.0	U	MG/KG		0.00
B303490	07/12/90	B3034900008	LITHIUM	31.2		MG/KG		31.0		MG/KG		0.64
B303590	07/12/90	B3035900009	LITHIUM	31.8		MG/KG		31.2		MG/KG		1.90

Number achieving RPD criteria* per number of duplicate pairs: 50/54 Percent achieving criteria*: 92.593

MAGNESIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	MAGNESIUM	2700.00		MG/KG	V	3140.00		MG/KG	V	15.07
30691	08/15/91	BH00056EBU1, BH00055EBU1	MAGNESIUM	2240.00		MG/KG	V	2010.00		MG/KG	V	10.82
30791	08/16/91	BH00064EBU1, BH00063EBU1	MAGNESIUM	2780.00		MG/KG	V	1640.00		MG/KG	V	51.58
30891	08/19/91	BH00073EBU1, BH00070EBU1	MAGNESIUM	3150		MG/KG	V	3170		MG/KG	V	0.63
31091	08/20/91	BH00085EBU1, BH00084EBU1	MAGNESIUM	5130		MG/KG	JA	6150		MG/KG	JA	18.09
31291	08/21/91	BH00094EBU1, BH00091EBU1	MAGNESIUM	1920		MG/KG	V	1900		MG/KG	V	1.05
31591	08/23/91	BH00106EBU1, BH00103EBU1	MAGNESIUM	2700.00	E	MG/KG		2680.00	E	MG/KG		0.74
31691	08/26/91	BH00113EBU1, BH00112EBU1	MAGNESIUM	2340		MG/KG	V	1960		MG/KG	V	17.67
31891	08/27/91	BH00125EBU1, BH00122EBU1	MAGNESIUM	3630.00	E	MG/KG	JA	3490.00	E	MG/KG	JA	3.93
31991	08/28/91	BH00140EBU1, BH00137EBU1	MAGNESIUM	2220.00	E	MG/KG	JA	2170.00	E	MG/KG	JA	2.28
32191	08/30/91	BH00221EBU1, BH00219EBU1	MAGNESIUM	5240.00	E	MG/KG	JA	6110.00	E	MG/KG	JA	15.33
32491	09/04/91	BH00240EBU1, BH00239EBU1	MAGNESIUM	3690		MG/KG	JA	3710		MG/KG	JA	0.54
32691	09/05/91	BH00250EBU1, BH00249EBU1	MAGNESIUM	1880		MG/KG	JA	1820		MG/KG	JA	3.24
32891	09/06/91	BH00258EBU1, BH00257EBU1	MAGNESIUM	2660		MG/KG	JA	3280		MG/KG	JA	20.88

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32991	09/06/91	BH00265EBU1, BH00264EBU1	MAGNESIUM	2490		MG/KG	JA	3520		MG/KG	JA	34.28
33191	09/09/91	BH00275EBU1, BH00274EBU1	MAGNESIUM	3060		MG/KG	JA	2940		MG/KG	JA	4.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	MAGNESIUM	2650		MG/KG	V	2410		MG/KG	V	9.49
33591	09/11/91	BH00295EBU1, BH00294EBU1	MAGNESIUM	5390.00	E	MG/KG	JA	5170.00	E	MG/KG	JA	4.17
33791	09/12/91	BH00356EBU1, BH00355EBU1	MAGNESIUM	1170.00	E	MG/KG	JA	751.00	BE	MG/KG	JA	43.62
33991	09/13/91	BH00365EBU1, BH00364EBU1	MAGNESIUM	3050.00		MG/KG	V	2490.00		MG/KG	V	20.22
34091	09/16/91	BH00372EBU1, BH00371EBU1	MAGNESIUM	4470.00		MG/KG	V	3140.00		MG/KG	V	34.95
34291	09/16/91	BH00380EBU1, BH00379EBU1	MAGNESIUM	2630.00		MG/KG	V	2850.00		MG/KG	V	8.03
34491	09/17/91	BH00386EBU1, BH00385EBU1	MAGNESIUM	1930.00	E	MG/KG	JA	2620.00	E	MG/KG	JA	30.33
34691	09/18/91	BH00392EBU1, BH00391EBU1	MAGNESIUM	4280.00		MG/KG	V	4300.00		MG/KG	V	0.47
34891	09/19/91	BH00405EBU1, BH00403EBU1	MAGNESIUM	3650.00		MG/KG	V	4050.00		MG/KG	V	10.39
34991	09/20/91	BH00414EBU1, BH00413EBU1	MAGNESIUM	2940.00		MG/KG	V	3890.00		MG/KG	V	27.82
35291	09/24/91	BH00423EBU1, BH00422EBU1	MAGNESIUM	3410.00		MG/KG	V	3600.00		MG/KG	V	5.42
35391	09/24/91	BH00345EBU1, BH00344EBU1	MAGNESIUM	2250.00		MG/KG	V	2320.00		MG/KG	V	3.06
35491	09/24/91	BH00432EBU1, BH00431EBU1	MAGNESIUM	3120.00		MG/KG	V	2840.00		MG/KG	V	9.40
35591	09/26/91	BH00437EBU1, BH00436EBU1	MAGNESIUM	1650.00		MG/KG	V	1480.00		MG/KG	V	10.86
35791	09/27/91	BH00442EBU1, BH00441EBU1	MAGNESIUM	3680.00		MG/KG	V	4030.00		MG/KG	V	9.08
35891	10/01/91	BH00451EBU1, BH00450EBU1	MAGNESIUM	2080.00		MG/KG	V	1970.00		MG/KG	V	5.43
36091	10/02/91	BH00459EBU1, BH00458EBU1	MAGNESIUM	2200.00	E	MG/KG	V	1870.00	E	MG/KG	V	16.22
36291	10/03/91	BH00471EBU1, BH00470EBU1	MAGNESIUM	2060.00	E	MG/KG	V	2320.00	E	MG/KG	V	11.87
36391	10/04/91	BH00524EBU1, BH00523EBU1	MAGNESIUM	2270.00		MG/KG	V	2390.00		MG/KG	V	5.15
36491	10/04/91	BH00478EBU1, BH00477EBU1	MAGNESIUM	4360.00		MG/KG	V	4090.00		MG/KG	V	6.39
36591	10/07/91	BH00489EBU1, BH00488EBU1	MAGNESIUM	2810.00		MG/KG	V	3360.00		MG/KG	V	17.83
36691	10/10/91	BH00544EBU1, BH00543EBU1	MAGNESIUM	4170.00		MG/KG	V	3860.00		MG/KG	V	7.72
36791	10/09/91	BH00600EBU1, BH00499EBU1	MAGNESIUM	2730.00		MG/KG	V	2670.00		MG/KG	V	2.22
36891	10/10/91	BH00610EBU1, BH00609EBU1	MAGNESIUM	996.00	B	MG/KG	V	2270.00		MG/KG	V	78.02
37091	10/14/91	BH00625EBU1, BH00624EBU1	MAGNESIUM	3620.00		MG/KG	V	5810.00		MG/KG	V	46.45
37191	10/14/91	BH00561EBU1, BH00560EBU1	MAGNESIUM	5670.00		MG/KG	V	5560.00		MG/KG	V	1.96
37291	10/15/91	BH00634EBU1, BH00632EBU1	MAGNESIUM	3190.00		MG/KG	V	3040.00		MG/KG	V	4.82
37391	10/16/91	BH00651EBU1, BH00650EBU1	MAGNESIUM	3670.00		MG/KG	V	5170.00		MG/KG	V	33.94
37491	10/16/91	BH00577EBU1, BH00576EBU1	MAGNESIUM	3740.00		MG/KG		3680		MG/KG	JA	1.62
39591	11/20/91	BH00861EBU1, BH00860EBU1	MAGNESIUM	2450.00		MG/KG	V	2460.00		MG/KG	V	0.41
B300190	02/02/90	B3001900006	MAGNESIUM	4450	J	MG/KG	A	5110		MG/KG		13.81
B300790	02/09/90	B3007900004	MAGNESIUM	3240		MG/KG	V	4420		MG/KG	V	30.81
B301190	02/22/90	B3011900004	MAGNESIUM	4130		MG/KG	A	4480		MG/KG		8.13
B301490	02/26/90	B3014900812	MAGNESIUM	3060		MG/KG	A	3170		MG/KG	A	3.53
B301790	03/20/90	B3017900408	MAGNESIUM	6760		MG/KG		6600		MG/KG		2.40
B303390	07/11/90	B3033900008	MAGNESIUM	4750		MG/KG		4480		MG/KG		5.85
B303490	07/12/90	B3034900008	MAGNESIUM	2540		MG/KG		2880		MG/KG		12.55
B303590	07/12/90	B3035900009	MAGNESIUM	3600		MG/KG		3430		MG/KG		4.84
			Number achieving RPD criteria* per number of duplicate pairs: 50/54					Percent achieving criteria*: 92.593				
MANGANESE												
30591	08/14/91	BH00049EBU1, BH00047EBU1	MANGANESE	36.00	•	MG/KG	JA	45.30	•	MG/KG	JA	22.88
30691	08/15/91	BH00056EBU1, BH00055EBU1	MANGANESE	48.10	•	MG/KG	JA	44.50	•	MG/KG	JA	7.78
30791	08/16/91	BH00064EBU1, BH00063EBU1	MANGANESE	110.00	•	MG/KG	JA	70.70	*	MG/KG	JA	43.50
30891	08/19/91	BH00073EBU1, BH00070EBU1	MANGANESE	219		MG/KG	V	311		MG/KG	V	34.72
31091	08/20/91	BH00085EBU1, BH00084EBU1	MANGANESE	1320		MG/KG	JA	408		MG/KG	JA	105.56

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31291	08/21/91	BH00094EBU1, BH00091EBU1	MANGANESE	185		MG/KG	V	260		MG/KG	V	33.71
31591	08/23/91	BH00106EBU1, BH00103EBU1	MANGANESE	100.00	E*	MG/KG		75.00	E*	MG/KG		28.57
31691	08/26/91	BH00113EBU1, BH00112EBU1	MANGANESE	147		MG/KG	V	155		MG/KG	V	5.30
31891	08/27/91	BH00125EBU1, BH00122EBU1	MANGANESE	300.00	EN*	MG/KG	JA	295.00	EN*	MG/KG	JA	1.68
31991	08/28/91	BH00140EBU1, BH00137EBU1	MANGANESE	212.00	EN*	MG/KG	JA	208.00	EN*	MG/KG	JA	1.90
32191	08/30/91	BH00221EBU1, BH00219EBU1	MANGANESE	133.00	EN	MG/KG	JA	560.00	EN	MG/KG	JA	123.23
32491	09/04/91	BH00240EBU1, BH00239EBU1	MANGANESE	228		MG/KG	JA	236		MG/KG	JA	3.45
32691	09/05/91	BH00250EBU1, BH00249EBU1	MANGANESE	73.5		MG/KG	JA	57.8		MG/KG	JA	23.91
32891	09/06/91	BH00258EBU1, BH00257EBU1	MANGANESE	110		MG/KG	JA	127		MG/KG	JA	14.35
32991	09/06/91	BH00265EBU1, BH00264EBU1	MANGANESE	115		MG/KG	JA	132		MG/KG	JA	13.77
33191	09/09/91	BH00275EBU1, BH00274EBU1	MANGANESE	273		MG/KG	JA	186		MG/KG	JA	37.91
33291	09/10/91	BH00289EBU1, BH00288EBU1	MANGANESE	104		MG/KG	JA	222		MG/KG	JA	72.39
33591	09/11/91	BH00295EBU1, BH00294EBU1	MANGANESE	357.00	EN	MG/KG	JA	429.00	EN	MG/KG	JA	18.32
33791	09/12/91	BH00356EBU1, BH00355EBU1	MANGANESE	162.00	E	MG/KG	JA	123.00	E	MG/KG	JA	27.37
33991	09/13/91	BH00365EBU1, BH00364EBU1	MANGANESE	121.00	EN*	MG/KG	JA	167.00	EN*	MG/KG	JA	31.94
34091	09/16/91	BH00372EBU1, BH00371EBU1	MANGANESE	288.00	EN*	MG/KG	JA	335.00	EN*	MG/KG	JA	15.09
34291	09/16/91	BH00380EBU1, BH00379EBU1	MANGANESE	117.00	EN*	MG/KG	JA	459.00	EN*	MG/KG	JA	118.75
34491	09/17/91	BH00386EBU1, BH00385EBU1	MANGANESE	110.00	N	MG/KG	JA	249.00	N	MG/KG	JA	77.44
34691	09/18/91	BH00392EBU1, BH00391EBU1	MANGANESE	457.00	•	MG/KG	JA	307.00	•	MG/KG	JA	39.27
34891	09/19/91	BH00405EBU1, BH00403EBU1	MANGANESE	294.00	N*	MG/KG	JA	1500.00	N*	MG/KG	JA	134.45
34991	09/20/91	BH00414EBU1, BH00413EBU1	MANGANESE	451.00	N*	MG/KG	JA	310.00	N*	MG/KG	JA	37.06
35291	09/24/91	BH00423EBU1, BH00422EBU1	MANGANESE	251.00	N*	MG/KG	JA	264.00	N*	MG/KG	JA	5.05
35391	09/24/91	BH00345EBU1, BH00344EBU1	MANGANESE	384.00	N*	MG/KG	JA	317.00	N*	MG/KG	JA	19.12
35491	09/24/91	BH00432EBU1, BH00431EBU1	MANGANESE	104.00	N	MG/KG	JA	55.40	N	MG/KG	JA	60.98
35591	09/26/91	BH00437EBU1, BH00436EBU1	MANGANESE	151.00	N	MG/KG	JA	145.00	N	MG/KG	JA	4.05
35791	09/27/91	BH00442EBU1, BH00441EBU1	MANGANESE	392.00	N	MG/KG	JA	451.00	N	MG/KG	JA	14.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	MANGANESE	195.00		MG/KG	V	156.00		MG/KG	V	22.22
36091	10/02/91	BH00459EBU1, BH00458EBU1	MANGANESE	217.00	E*	MG/KG	JA	202.00	E*	MG/KG	JA	7.16
36291	10/03/91	BH00471EBU1, BH00470EBU1	MANGANESE	93.30	E*	MG/KG	JA	270.00	E*	MG/KG	JA	97.27
36391	10/04/91	BH00524EBU1, BH00523EBU1	MANGANESE	166.00	N*	MG/KG	JA	211.00	N*	MG/KG	JA	23.87
36491	10/04/91	BH00478EBU1, BH00477EBU1	MANGANESE	369.00		MG/KG	V	329.00		MG/KG	V	11.46
36591	10/07/91	BH00489EBU1, BH00488EBU1	MANGANESE	139.00	N*	MG/KG	JA	82.80	N*	MG/KG	JA	50.68
36691	10/10/91	BH00544EBU1, BH00543EBU1	MANGANESE	598.00	N	MG/KG	JA	308.00	N	MG/KG	JA	64.02
36791	10/09/91	BH00600EBU1, BH00499EBU1	MANGANESE	285.00	•	MG/KG	JA	385.00	•	MG/KG	JA	29.85
36891	10/10/91	BH00610EBU1, BH00609EBU1	MANGANESE	108.00	•	MG/KG	JA	414.00	•	MG/KG	JA	117.24
37091	10/14/91	BH00625EBU1, BH00624EBU1	MANGANESE	208.00		MG/KG	V	260.00		MG/KG	V	22.22
37191	10/14/91	BH00561EBU1, BH00560EBU1	MANGANESE	3460.00	N*	MG/KG	JA	287.00	N*	MG/KG	JA	169.36
37291	10/15/91	BH00634EBU1, BH00632EBU1	MANGANESE	200.00		MG/KG	V	231.00		MG/KG	V	14.39
37391	10/16/91	BH00651EBU1, BH00650EBU1	MANGANESE	270.00	N*	MG/KG	JA	329.00	N*	MG/KG	JA	19.70
37491	10/16/91	BH00577EBU1, BH00576EBU1	MANGANESE	362.00	N*	MG/KG		492		MG/KG	JA	30.44
39591	11/20/91	BH00861EBU1, BH00860EBU1	MANGANESE	181.00		MG/KG	V	203.00		MG/KG	V	11.46
B300190	02/02/90	B3001900006	MANGANESE	317	J	MG/KG	A	298		MG/KG		6.18
B300790	02/09/90	B3007900004	MANGANESE	109		MG/KG	V	113		MG/KG	V	3.60
B301190	02/22/90	B3011900004	MANGANESE	344		MG/KG	A	464		MG/KG		29.70
B301490	02/26/90	B3014900812	MANGANESE	84.2		MG/KG	A	114		MG/KG	A	30.07
B301790	03/20/90	B3017900408	MANGANESE	395		MG/KG		451		MG/KG		13.24
B303390	07/11/90	B3033900008	MANGANESE	551		MG/KG		244		MG/KG		77.23
B303490	07/12/90	B3034900008	MANGANESE	126		MG/KG		113		MG/KG		10.88

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303590	07/12/90	B3035900009	MANGANESE	325		MG/KG		309		MG/KG		5.05
			Number achieving RPD criteria* per number of duplicate pairs: 40/54					Percent achieving criteria*: 74.074				
MERCURY												
30591	08/14/91	BH00049EBU1, BH00047EBU1	MERCURY	0.10	U	MG/KG	V	0.12	U	MG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	MERCURY	0.11	U	MG/KG	V	0.10	U	MG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	MERCURY	0.18		MG/KG	V	0.11	U	MG/KG	V	48.28
30891	08/19/91	BH00073EBU1, BH00070EBU1	MERCURY	0.10	U	MG/KG	V	0.12	U	MG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	MERCURY	0.11	U	MG/KG	JA	0.10	U	MG/KG	JA	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	MERCURY	0.10	U	MG/KG	V	0.18		MG/KG	V	57.14
31591	08/23/91	BH00106EBU1, BH00103EBU1	MERCURY	0.10	U	MG/KG		0.10	U	MG/KG		0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	MERCURY	0.12	U	MG/KG	V	0.10	U	MG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	MERCURY	0.10	U	MG/KG	V	0.12	U	MG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	MERCURY	0.11	U	MG/KG	V	0.11	U	MG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	MERCURY	0.10	UN	MG/KG	JA	0.13	UN	MG/KG	JA	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	MERCURY	0.19	U	MG/KG	JA	0.19	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	MERCURY	0.18	U	MG/KG	JA	0.19	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	MERCURY	0.17	U	MG/KG	JA	0.17	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	MERCURY	0.17	U	MG/KG	JA	0.18	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	MERCURY	0.18	U	MG/KG	JA	0.18	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	MERCURY	0.18	U	MG/KG	V	0.18	U	MG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	MERCURY	0.12	UN	MG/KG	JA	0.11	UN	MG/KG	JA	0.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	MERCURY	0.11	UN	MG/KG	JA	0.11	UN	MG/KG	JA	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	MERCURY	0.10	U	MG/KG	V	0.12	U	MG/KG	V	0.00
34091	09/16/91	BH00372EBU1, BH00371EBU1	MERCURY	0.10	U	MG/KG	V	0.10	U	MG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	MERCURY	0.12	U	MG/KG	V	0.12	U	MG/KG	V	0.00
34491	09/17/91	BH00386EBU1, BH00385EBU1	MERCURY	0.11	U	MG/KG	V	0.11	U	MG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	MERCURY	0.10	U	MG/KG	V	0.11	U	MG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	MERCURY	0.10	U	MG/KG	V	0.11	U	MG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	MERCURY	0.10	U	MG/KG	V	0.10	U	MG/KG	V	0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	MERCURY	0.10	U	MG/KG	V	0.10	U	MG/KG	V	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	MERCURY	0.10	U	MG/KG	V	0.10	U	MG/KG	V	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	MERCURY	0.10	U	MG/KG	V	0.12		MG/KG	V	18.18
35591	09/26/91	BH00437EBU1, BH00436EBU1	MERCURY	0.12	U	MG/KG	V	0.11	U	MG/KG	V	0.00
35791	09/27/91	BH00442EBU1, BH00441EBU1	MERCURY	0.11	U	MG/KG	V	0.09	U	MG/KG	V	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	MERCURY	0.11		MG/KG	V	0.11	U	MG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	MERCURY	0.11		MG/KG	V	0.10	U	MG/KG	V	9.52
36291	10/03/91	BH00471EBU1, BH00470EBU1	MERCURY	0.11	U	MG/KG	V	0.13		MG/KG	V	16.67
36391	10/04/91	BH00524EBU1, BH00523EBU1	MERCURY	0.20		MG/KG	V	0.11		MG/KG	V	58.06
36491	10/04/91	BH00478EBU1, BH00477EBU1	MERCURY	0.10	U	MG/KG	V	0.13		MG/KG	V	26.09
36591	10/07/91	BH00489EBU1, BH00488EBU1	MERCURY	0.11	U	MG/KG	V	0.11	U	MG/KG	V	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	MERCURY	0.10	U	MG/KG	V	0.09	U	MG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	MERCURY	0.13		MG/KG	V	0.12	U	MG/KG	V	8.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	MERCURY	0.10	U	MG/KG	V	0.10	U	MG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	MERCURY	0.11	U	MG/KG	V	0.11	U	MG/KG	V	0.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	MERCURY	0.11	U*	MG/KG	V	0.12	U*	MG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	MERCURY	0.12	U	MG/KG	V	0.12	U	MG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	MERCURY	0.11	UN	MG/KG	V	0.12	UN	MG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37491	10/16/91	BH00577EBU1, BH00576EBU1	MERCURY	0.11	U	MG/KG		.1	B	MG/KG	JA	9.52
39591	11/20/91	BH00861EBU1, BH00860EBU1	MERCURY	0.12	U	MG/KG	V	0.11		MG/KG	V	8.70
B300790	02/09/90	B3007900004	MERCURY	0.11	UJ	MG/KG	A	0.11	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	MERCURY	0.12	U	MG/KG	A	0.11	U	MG/KG		0.00
B301490	02/26/90	B3014900812	MERCURY	0.11	U	MG/KG	A	0.12	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	MERCURY	0.12	U	MG/KG		0.11	U	MG/KG		0.00
B303390	07/11/90	B3033900008	MERCURY	0.095	U	MG/KG		2.2		MG/KG		183.44
B303490	07/12/90	B3034900008	MERCURY	0.11	U	MG/KG		0.11	U	MG/KG		0.00
B303590	07/12/90	B3035900009	MERCURY	0.11	U	MG/KG		0.097	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 49/53					Percent achieving criteria*: 92.453				
MOLYBDENUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	MOLYBDENUM	0.71	U	MG/KG	JA	0.71	U	MG/KG	JA	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	MOLYBDENUM	0.69	U	MG/KG	JA	0.67	U	MG/KG	JA	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	MOLYBDENUM	0.68	B	MG/KG	JA	1.10	B	MG/KG	JA	47.19
30891	08/19/91	BH00073EBU1, BH00070EBU1	MOLYBDENUM	0.96		MG/KG	JA	1.4		MG/KG	JA	37.29
31091	08/20/91	BH00085EBU1, BH00084EBU1	MOLYBDENUM	3.60	B	MG/KG		3.10	B	MG/KG		14.93
31291	08/21/91	BH00094EBU1, BH00091EBU1	MOLYBDENUM	0.69	U	MG/KG	JA	0.97		MG/KG	JA	33.73
31591	08/23/91	BH00106EBU1, BH00103EBU1	MOLYBDENUM	2.30	B	MG/KG		2.80	B	MG/KG		19.61
31691	08/26/91	BH00113EBU1, BH00112EBU1	MOLYBDENUM	0.70		MG/KG	JA	1.2		MG/KG	JA	52.63
31891	08/27/91	BH00125EBU1, BH00122EBU1	MOLYBDENUM	0.70	U	MG/KG	JA	0.68	U	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	MOLYBDENUM	0.66	U	MG/KG	JA	0.64	U	MG/KG	JA	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	MOLYBDENUM	0.73	U	MG/KG	JA	1.10	B	MG/KG	JA	40.44
32491	09/04/91	BH00240EBU1, BH00239EBU1	MOLYBDENUM	2.4	U	MG/KG	JA	2.4	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	MOLYBDENUM	2.3	U	MG/KG	JA	2.3	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	MOLYBDENUM	2.2	U	MG/KG	JA	2.2	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	MOLYBDENUM	2.2	U	MG/KG	JA	2.2	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	MOLYBDENUM	2.3	U	MG/KG	JA	2.3	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	MOLYBDENUM	2.4	U	MG/KG	JA	2.3	U	MG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	MOLYBDENUM	0.67	U	MG/KG	JA	1.00	B	MG/KG	JA	39.52
33791	09/12/91	BH00356EBU1, BH00355EBU1	MOLYBDENUM	0.63	U	MG/KG	JA	8.40	B	MG/KG	JA	172.09
33991	09/13/91	BH00365EBU1, BH00364EBU1	MOLYBDENUM	1.00	B	MG/KG	JA	0.68	U	MG/KG	JA	38.10
34091	09/16/91	BH00372EBU1, BH00371EBU1	MOLYBDENUM	0.82	B	MG/KG	JA	0.78	B	MG/KG	JA	5.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	MOLYBDENUM	0.69	U	MG/KG	JA	2.30	B	MG/KG	JA	107.69
34491	09/17/91	BH00386EBU1, BH00385EBU1	MOLYBDENUM	0.72	U	MG/KG	JA	4.70	B	MG/KG	JA	146.86
34691	09/18/91	BH00392EBU1, BH00391EBU1	MOLYBDENUM	0.67	U	MG/KG	JA	0.69	U	MG/KG	JA	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	MOLYBDENUM	0.68	U	MG/KG	JA	1.30	B	MG/KG	JA	62.63
34991	09/20/91	BH00414EBU1, BH00413EBU1	MOLYBDENUM	1.90	B	MG/KG	JA	1.80	B	MG/KG	JA	5.41
35291	09/24/91	BH00423EBU1, BH00422EBU1	MOLYBDENUM	1.90	B	MG/KG	JA	1.50	B	MG/KG	JA	23.53
35391	09/24/91	BH00345EBU1, BH00344EBU1	MOLYBDENUM	1.50	B	MG/KG	JA	1.50	B	MG/KG	JA	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	MOLYBDENUM	1.20	B	MG/KG	JA	1.10	B	MG/KG	JA	8.70
35591	09/26/91	BH00437EBU1, BH00436EBU1	MOLYBDENUM	0.94	B	MG/KG	JA	0.96	B	MG/KG	JA	2.11
35791	09/27/91	BH00442EBU1, BH00441EBU1	MOLYBDENUM	1.90	B	MG/KG	JA	1.30	B	MG/KG	JA	37.50
35891	10/01/91	BH00451EBU1, BH00450EBU1	MOLYBDENUM	1.70	B	MG/KG	JA	1.50	B	MG/KG	JA	12.50
36091	10/02/91	BH00459EBU1, BH00458EBU1	MOLYBDENUM	1.10	B	MG/KG	JA	0.86	B	MG/KG	JA	24.49
36291	10/03/91	BH00471EBU1, BH00470EBU1	MOLYBDENUM	0.68	U	MG/KG	JA	0.90	B	MG/KG	JA	27.85
36391	10/04/91	BH00524EBU1, BH00523EBU1	MOLYBDENUM	1.20	B	MG/KG	JA	1.10	B	MG/KG	JA	8.70
36491	10/04/91	BH00478EBU1, BH00477EBU1	MOLYBDENUM	0.90	B	MG/KG	JA	0.84	B	MG/KG	JA	6.90

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36591	10/07/91	BH00489EBU1, BH00488EBU1	MOLYBDENUM	1.00	B	MG/KG	JA	1.10	B	MG/KG	JA	9.52
36691	10/10/91	BH00544EBU1, BH00543EBU1	MOLYBDENUM	1.10	B	MG/KG	JA	0.84	B	MG/KG	JA	26.80
36791	10/09/91	BH00600EBU1, BH00499EBU1	MOLYBDENUM	0.75	U	MG/KG	JA	0.83	B	MG/KG	JA	10.13
36891	10/10/91	BH00610EBU1, BH00609EBU1	MOLYBDENUM	0.64	U	MG/KG	JA	1.50	B	MG/KG	JA	80.37
37091	10/14/91	BH00625EBU1, BH00624EBU1	MOLYBDENUM	1.20	B	MG/KG	V	1.80	B	MG/KG	V	40.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	MOLYBDENUM	2.50	B	MG/KG	JA	0.73	U	MG/KG	JA	109.60
37291	10/15/91	BH00634EBU1, BH00632EBU1	MOLYBDENUM	1.30	B	MG/KG	V	1.20	B	MG/KG	V	8.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	MOLYBDENUM	0.95	B	MG/KG	JA	0.75	B	MG/KG	JA	23.53
37491	10/16/91	BH00577EBU1, BH00576EBU1	MOLYBDENUM	1.50	B	MG/KG		1.8	U	MG/KG	JA	18.18
39591	11/20/91	BH00861EBU1, BH00860EBU1	MOLYBDENUM	0.77	U	MG/KG	JA	0.81	B	MG/KG	JA	5.06
B300190	02/02/90	B3001900006	MOLYBDENUM	22.6	UJ	MG/KG	A	23.0	U	MG/KG		0.00
B300790	02/09/90	B3007900004	MOLYBDENUM	21.7	UJ	MG/KG	A	23.0	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	MOLYBDENUM	22.9	U	MG/KG	A	22.6	U	MG/KG		0.00
B301490	02/26/90	B3014900812	MOLYBDENUM	24.5	U	MG/KG	A	24.1	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	MOLYBDENUM	24.3	U	MG/KG		24.3	U	MG/KG		0.00
B303390	07/11/90	B3033900008	MOLYBDENUM	21.5	U	MG/KG		22.0	U	MG/KG		0.00
B303490	07/12/90	B3034900008	MOLYBDENUM	32.4		MG/KG		32.3		MG/KG		0.31
B303590	07/12/90	B3035900009	MOLYBDENUM	32.8		MG/KG		33.2		MG/KG		1.21

Number achieving RPD criteria* per number of duplicate pairs: 45/54 Percent achieving criteria*: 83.333

NICKEL												
30591	08/14/91	BH00049EBU1, BH00047EBU1	NICKEL	13.10		MG/KG	V	13.00		MG/KG	V	0.77
30691	08/15/91	BH00056EBU1, BH00055EBU1	NICKEL	7.20	B	MG/KG	V	5.20	B	MG/KG	V	32.26
30791	08/16/91	BH00064EBU1, BH00063EBU1	NICKEL	10.80		MG/KG	V	20.30		MG/KG	V	61.09
30891	08/19/91	BH00073EBU1, BH00070EBU1	NICKEL	18.0		MG/KG	V	23.0		MG/KG	V	24.39
31091	08/20/91	BH00085EBU1, BH00084EBU1	NICKEL	21.7		MG/KG	JA	21.4		MG/KG	JA	1.39
31291	08/21/91	BH00094EBU1, BH00091EBU1	NICKEL	23.7		MG/KG	V	24.5		MG/KG	V	3.32
31591	08/23/91	BH00106EBU1, BH00103EBU1	NICKEL	16.20		MG/KG		16.30		MG/KG		0.62
31691	08/26/91	BH00113EBU1, BH00112EBU1	NICKEL	13.1		MG/KG	V	16.5		MG/KG	V	22.97
31891	08/27/91	BH00125EBU1, BH00122EBU1	NICKEL	17.30		MG/KG	V	17.30		MG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	NICKEL	11.60		MG/KG	V	10.70		MG/KG	V	8.07
32191	08/30/91	BH00221EBU1, BH00219EBU1	NICKEL	14.80		MG/KG	V	18.60		MG/KG	V	22.75
32491	09/04/91	BH00240EBU1, BH00239EBU1	NICKEL	20.4		MG/KG	JA	18.0		MG/KG	JA	12.50
32691	09/05/91	BH00250EBU1, BH00249EBU1	NICKEL	16.8		MG/KG	JA	19.7		MG/KG	JA	15.89
32891	09/06/91	BH00258EBU1, BH00257EBU1	NICKEL	10.0		MG/KG	JA	11.4		MG/KG	JA	13.08
32991	09/06/91	BH00265EBU1, BH00264EBU1	NICKEL	10.9		MG/KG	JA	14.6		MG/KG	JA	29.02
33191	09/09/91	BH00275EBU1, BH00274EBU1	NICKEL	11.4		MG/KG	JA	12.5		MG/KG	JA	9.21
33291	09/10/91	BH00289EBU1, BH00288EBU1	NICKEL	13.3		MG/KG	V	17.4		MG/KG	V	26.71
33591	09/11/91	BH00295EBU1, BH00294EBU1	NICKEL	17.10		MG/KG	V	16.10		MG/KG	V	6.02
33791	09/12/91	BH00356EBU1, BH00355EBU1	NICKEL	8.60		MG/KG	V	9.30		MG/KG	V	7.82
33991	09/13/91	BH00365EBU1, BH00364EBU1	NICKEL	33.90		MG/KG	V	16.30		MG/KG	V	70.12
34091	09/16/91	BH00372EBU1, BH00371EBU1	NICKEL	16.40		MG/KG	V	13.80		MG/KG	V	17.22
34291	09/16/91	BH00380EBU1, BH00379EBU1	NICKEL	7.70	B	MG/KG	V	21.70		MG/KG	V	95.24
34491	09/17/91	BH00386EBU1, BH00385EBU1	NICKEL	9.50	B	MG/KG	V	15.80		MG/KG	V	49.80
34691	09/18/91	BH00392EBU1, BH00391EBU1	NICKEL	16.60		MG/KG	V	17.10		MG/KG	V	2.97
34891	09/19/91	BH00405EBU1, BH00403EBU1	NICKEL	14.80		MG/KG	V	27.60		MG/KG	V	60.38
34991	09/20/91	BH00414EBU1, BH00413EBU1	NICKEL	15.10		MG/KG	V	15.30		MG/KG	V	1.32
35291	09/24/91	BH00423EBU1, BH00422EBU1	NICKEL	16.00		MG/KG	V	17.00		MG/KG	V	6.06

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
35391	09/24/91	BH00345EBU1, BH00344EBU1	NICKEL	19.90		MG/KG	V	20.20		MG/KG	V	1.50
35491	09/24/91	BH00432EBU1, BH00431EBU1	NICKEL	36.80		MG/KG	V	18.00		MG/KG	V	68.61
35591	09/26/91	BH00437EBU1, BH00436EBU1	NICKEL	11.70		MG/KG	V	8.80	B	MG/KG	V	28.29
35791	09/27/91	BH00442EBU1, BH00441EBU1	NICKEL	17.30		MG/KG	V	16.10		MG/KG	V	7.19
35891	10/01/91	BH00451EBU1, BH00450EBU1	NICKEL	16.70		MG/KG	V	14.80		MG/KG	V	12.06
36091	10/02/91	BH00459EBU1, BH00458EBU1	NICKEL	9.60		MG/KG	V	8.20	B	MG/KG	V	15.73
36291	10/03/91	BH00471EBU1, BH00470EBU1	NICKEL	12.30		MG/KG	V	20.20		MG/KG	V	48.62
36391	10/04/91	BH00524EBU1, BH00523EBU1	NICKEL	11.30		MG/KG	V	14.90		MG/KG	V	27.48
36491	10/04/91	BH00478EBU1, BH00477EBU1	NICKEL	20.50		MG/KG	V	19.00		MG/KG	V	7.59
36591	10/07/91	BH00489EBU1, BH00488EBU1	NICKEL	10.00		MG/KG	JA	6.80	B	MG/KG	JA	38.10
36691	10/10/91	BH00544EBU1, BH00543EBU1	NICKEL	18.40		MG/KG	V	14.70		MG/KG	V	22.36
36791	10/09/91	BH00600EBU1, BH00499EBU1	NICKEL	13.30		MG/KG	V	13.80		MG/KG	V	3.69
36891	10/10/91	BH00610EBU1, BH00609EBU1	NICKEL	5.10	B	MG/KG	V	12.10		MG/KG	V	81.40
37091	10/14/91	BH00625EBU1, BH00624EBU1	NICKEL	14.90		MG/KG	V	16.50		MG/KG	V	10.19
37191	10/14/91	BH00561EBU1, BH00560EBU1	NICKEL	43.70		MG/KG	V	16.50		MG/KG	V	90.37
37291	10/15/91	BH00634EBU1, BH00632EBU1	NICKEL	21.00		MG/KG	V	17.50		MG/KG	V	18.18
37391	10/16/91	BH00651EBU1, BH00650EBU1	NICKEL	15.80		MG/KG	V	17.70		MG/KG	V	11.34
37491	10/16/91	BH00577EBU1, BH00576EBU1	NICKEL	19.40		MG/KG		24.6		MG/KG	JA	23.64
39591	11/20/91	BH00861EBU1, BH00860EBU1	NICKEL	14.50		MG/KG	V	14.50		MG/KG	V	0.00
B300190	02/02/90	B3001900006	NICKEL	16.1	J	MG/KG	A	17.8		MG/KG		10.03
B300790	02/09/90	B3007900004	NICKEL	14.1	J	MG/KG	A	17.2	J	MG/KG	A	19.81
B301190	02/22/90	B3011900004	NICKEL	19.5		MG/KG	A	19.3		MG/KG		1.03
B301490	02/26/90	B3014900812	NICKEL	11.4		MG/KG	A	13.5		MG/KG	A	16.87
B301790	03/20/90	B3017900408	NICKEL	19.6		MG/KG		19.5		MG/KG		0.51
B303390	07/11/90	B3033900008	NICKEL	53.5		MG/KG		25.3		MG/KG		71.57
B303490	07/12/90	B3034900008	NICKEL	14.7		MG/KG		18.1		MG/KG		20.73
B303590	07/12/90	B3035900009	NICKEL	18.0		MG/KG		15.2		MG/KG		16.87
			Number achieving RPD criteria* per number of duplicate pairs: 44/54					Percent achieving criteria*: 81.481				
POTASSIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	POTASSIUM	945.00	B	MG/KG	V	1210.00		MG/KG	V	24.59
30691	08/15/91	BH00056EBU1, BH00055EBU1	POTASSIUM	797.00	B	MG/KG	V	627.00	B	MG/KG	V	23.88
30791	08/16/91	BH00064EBU1, BH00063EBU1	POTASSIUM	1000.00	B	MG/KG	V	488.00	B	MG/KG	V	68.82
30891	08/19/91	BH00073EBU1, BH00070EBU1	POTASSIUM	1230		MG/KG	V	1040		MG/KG	V	16.74
31091	08/20/91	BH00085EBU1, BH00084EBU1	POTASSIUM	2480		MG/KG	JA	3240		MG/KG	JA	26.57
31291	08/21/91	BH00094EBU1, BH00091EBU1	POTASSIUM	765		MG/KG	JA	801		MG/KG	JA	4.60
31591	08/23/91	BH00106EBU1, BH00103EBU1	POTASSIUM	774.00	BE	MG/KG		788.00	BE	MG/KG		1.79
31691	08/26/91	BH00113EBU1, BH00112EBU1	POTASSIUM	758		MG/KG	JA	624		MG/KG	JA	19.39
31891	08/27/91	BH00125EBU1, BH00122EBU1	POTASSIUM	2330.00		MG/KG	V	2540.00		MG/KG	V	8.62
31991	08/28/91	BH00140EBU1, BH00137EBU1	POTASSIUM	1770.00		MG/KG	V	1290.00		MG/KG	V	31.37
32191	08/30/91	BH00221EBU1, BH00219EBU1	POTASSIUM	1260.00	E	MG/KG	JA	1510.00	E	MG/KG	JA	18.05
32491	09/04/91	BH00240EBU1, BH00239EBU1	POTASSIUM	1650		MG/KG	JA	1380		MG/KG	JA	17.82
32691	09/05/91	BH00250EBU1, BH00249EBU1	POTASSIUM	750	B	MG/KG	JA	773	B	MG/KG	JA	3.02
32891	09/06/91	BH00258EBU1, BH00257EBU1	POTASSIUM	1000	B	MG/KG	JA	1640		MG/KG	JA	48.48
32991	09/06/91	BH00265EBU1, BH00264EBU1	POTASSIUM	1370		MG/KG	JA	1810		MG/KG	JA	27.67
33191	09/09/91	BH00275EBU1, BH00274EBU1	POTASSIUM	1890		MG/KG	JA	1850		MG/KG	JA	2.14
33291	09/10/91	BH00289EBU1, BH00288EBU1	POTASSIUM	1640		MG/KG	V	1480		MG/KG	V	10.26
33591	09/11/91	BH00295EBU1, BH00294EBU1	POTASSIUM	1880.00	E	MG/KG	JA	1590.00	E	MG/KG	JA	16.71

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33791	09/12/91	BH00356EBU1, BH00355EBU1	POTASSIUM	782.00	B	MG/KG	V	608.00	B	MG/KG	V	25.04
33991	09/13/91	BH00365EBU1, BH00364EBU1	POTASSIUM	947.00	BE	MG/KG	JA	1500.00	E	MG/KG	JA	45.20
34091	09/16/91	BH00372EBU1, BH00371EBU1	POTASSIUM	2230.00	E	MG/KG	JA	1800.00	E	MG/KG	JA	21.34
34291	09/16/91	BH00380EBU1, BH00379EBU1	POTASSIUM	784.00	BE	MG/KG	JA	2070.00	E	MG/KG	JA	90.12
34491	09/17/91	BH00386EBU1, BH00385EBU1	POTASSIUM	737.00	B	MG/KG	V	1740.00		MG/KG	V	80.99
34691	09/18/91	BH00392EBU1, BH00391EBU1	POTASSIUM	2150.00	E	MG/KG	JA	2860.00	E	MG/KG	JA	28.34
34891	09/19/91	BH00405EBU1, BH00403EBU1	POTASSIUM	1460.00		MG/KG	V	1430.00		MG/KG	V	2.08
34991	09/20/91	BH00414EBU1, BH00413EBU1	POTASSIUM	2200.00		MG/KG	V	2160.00		MG/KG	V	1.83
35291	09/24/91	BH00423EBU1, BH00422EBU1	POTASSIUM	1540.00		MG/KG	V	1490.00		MG/KG	V	3.30
35391	09/24/91	BH00345EBU1, BH00344EBU1	POTASSIUM	1060.00		MG/KG	V	985.00	B	MG/KG	V	7.33
35491	09/24/91	BH00432EBU1, BH00431EBU1	POTASSIUM	888.00	BE	MG/KG	JA	702.00	BE	MG/KG	JA	23.40
35591	09/26/91	BH00437EBU1, BH00436EBU1	POTASSIUM	453.00	BE	MG/KG	JA	318.00	BE	MG/KG	JA	35.02
35791	09/27/91	BH00442EBU1, BH00441EBU1	POTASSIUM	1320.00	E	MG/KG	JA	1380.00	E	MG/KG	JA	4.44
35891	10/01/91	BH00451EBU1, BH00450EBU1	POTASSIUM	818.00	BE	MG/KG	JA	880.00	BE	MG/KG	JA	7.30
36091	10/02/91	BH00459EBU1, BH00458EBU1	POTASSIUM	1810.00	E	MG/KG	JA	1530.00	E	MG/KG	JA	16.77
36291	10/03/91	BH00471EBU1, BH00470EBU1	POTASSIUM	541.00	BE	MG/KG	JA	820.00	BE	MG/KG	JA	41.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	POTASSIUM	1010.00	BE	MG/KG	JA	934.00	BE	MG/KG	JA	7.82
36491	10/04/91	BH00478EBU1, BH00477EBU1	POTASSIUM	2340.00	E	MG/KG	JA	1930.00	E	MG/KG	JA	19.20
36591	10/07/91	BH00489EBU1, BH00488EBU1	POTASSIUM	1010.00	BE	MG/KG	JA	767.00	BE	MG/KG	JA	27.35
36691	10/10/91	BH00544EBU1, BH00543EBU1	POTASSIUM	1770.00		MG/KG	V	1710.00		MG/KG	V	3.45
36791	10/09/91	BH00600EBU1, BH00499EBU1	POTASSIUM	1440.00		MG/KG	V	1130.00	B	MG/KG	V	24.12
36891	10/10/91	BH00610EBU1, BH00609EBU1	POTASSIUM	550.00	B	MG/KG	V	525.00	B	MG/KG	V	4.65
37091	10/14/91	BH00625EBU1, BH00624EBU1	POTASSIUM	1670.00		MG/KG	V	1960.00		MG/KG	V	15.98
37191	10/14/91	BH00561EBU1, BH00560EBU1	POTASSIUM	1750.00	E	MG/KG	JA	1740.00	E	MG/KG	JA	0.57
37291	10/15/91	BH00634EBU1, BH00632EBU1	POTASSIUM	1240.00		MG/KG	V	1030.00	B	MG/KG	V	18.50
37391	10/16/91	BH00651EBU1, BH00650EBU1	POTASSIUM	1850.00		MG/KG	V	2160.00		MG/KG	V	15.46
37491	10/16/91	BH00577EBU1, BH00576EBU1	POTASSIUM	1320.00	E	MG/KG		1200		MG/KG	JA	9.52
39591	11/20/91	BH00861EBU1, BH00860EBU1	POTASSIUM	1000.00	BE	MG/KG	JA	871.00	BE	MG/KG	JA	13.79
B300190	02/02/90	B3001900006	POTASSIUM	1060		MG/KG	V	1570		MG/KG		38.78
B300790	02/09/90	B3007900004	POTASSIUM	319	J	MG/KG	A	852	J	MG/KG	A	91.03
B301190	02/22/90	B3011900004	POTASSIUM	1150	U	MG/KG	A	1130	U	MG/KG		0.00
B301490	02/26/90	B3014900812	POTASSIUM	1230	U	MG/KG	A	1200	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	POTASSIUM	2460		MG/KG		2540		MG/KG		3.20
B303390	07/11/90	B3033900008	POTASSIUM	1070	U	MG/KG		1710		MG/KG		46.04
B303490	07/12/90	B3034900008	POTASSIUM	1180	U	MG/KG		1160	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 45/53					Percent achieving criteria*: 84.906				
SILICON												
32491	09/04/91	BH00240EBU1, BH00239EBU1	SILICON	382		MG/KG	JA	505	B	MG/KG	JA	27.73
32691	09/05/91	BH00250EBU1, BH00249EBU1	SILICON	528		MG/KG	JA	479		MG/KG	JA	9.73
32891	09/06/91	BH00258EBU1, BH00257EBU1	SILICON	597		MG/KG	JA	558		MG/KG	JA	6.75
32991	09/06/91	BH00265EBU1, BH00264EBU1	SILICON	570		MG/KG	JA	709		MG/KG	JA	21.74
33191	09/09/91	BH00275EBU1, BH00274EBU1	SILICON	244		MG/KG	JA	286		MG/KG	JA	15.85
33291	09/10/91	BH00289EBU1, BH00288EBU1	SILICON	360		MG/KG	JA	396		MG/KG	JA	9.52
			Number achieving RPD criteria* per number of duplicate pairs: 6/6					Percent achieving criteria*: 100.000				
SILVER												
30591	08/14/91	BH00049EBU1, BH00047EBU1	SILVER	0.55	B	MG/KG	V	0.48	U	MG/KG	V	13.59

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30691	08/15/91	BH00056EBU1, BH00055EBU1	SILVER	0.46	U	MG/KG	V	0.45	U	MG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	SILVER	0.44	U	MG/KG	V	0.44	U	MG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	SILVER	0.56		MG/KG	V	0.70		MG/KG	V	22.22
31091	08/20/91	BH00085EBU1, BH00084EBU1	SILVER	1.10	B	MG/KG		0.68	B	MG/KG		47.19
31291	08/21/91	BH00094EBU1, BH00091EBU1	SILVER	0.46		MG/KG	JA	0.46	U	MG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	SILVER	0.94	B	MG/KG		0.97	B	MG/KG		3.14
31691	08/26/91	BH00113EBU1, BH00112EBU1	SILVER	0.46	U	MG/KG	JA	0.47	U	MG/KG	JA	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	SILVER	0.47	U	MG/KG	V	0.45	U	MG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	SILVER	0.44	U	MG/KG	V	0.43	U	MG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	SILVER	0.48	U	MG/KG	V	0.48	U	MG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	SILVER	1.2	U	MG/KG	JA	1.2	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	SILVER	1.2	U	MG/KG	JA	1.2	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	SILVER	1.1	U	MG/KG	JA	1.1	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	SILVER	1.1	U	MG/KG	JA	1.1	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	SILVER	1.1	U	MG/KG	JA	1.2	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	SILVER	1.2	U	MG/KG	JA	1.1	U	MG/KG	JA	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	SILVER	0.45	U	MG/KG	V	0.45	U	MG/KG	V	0.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	SILVER	0.42	U	MG/KG	V	0.43	U	MG/KG	V	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	SILVER	0.45	U	MG/KG	JA	0.45	U	MG/KG	V	0.00
34091	09/16/91	BH00372EBU1, BH00371EBU1	SILVER	0.46	U	MG/KG	V	0.43	U	MG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	SILVER	0.46	U	MG/KG	V	0.47	U	MG/KG	JA	0.00
34491	09/17/91	BH00386EBU1, BH00385EBU1	SILVER	0.48	U	MG/KG	V	0.48	U	MG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	SILVER	0.45	U	MG/KG	V	0.46	U	MG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	SILVER	0.45	U	MG/KG	V	0.45	U	MG/KG	V	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	SILVER	0.45	U	MG/KG	JA	0.45	U	MG/KG	JA	0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	SILVER	0.45	U	MG/KG	V	0.43	U	MG/KG	V	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	SILVER	0.41	U	MG/KG	V	0.42	U	MG/KG	V	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	SILVER	0.50	B	MG/KG	V	0.51	B	MG/KG	V	1.98
35591	09/26/91	BH00437EBU1, BH00436EBU1	SILVER	0.46	B	MG/KG	V	0.46	U	MG/KG	V	0.00
35791	09/27/91	BH00442EBU1, BH00441EBU1	SILVER	0.45	U	MG/KG	V	0.47	B	MG/KG	V	4.35
35891	10/01/91	BH00451EBU1, BH00450EBU1	SILVER	0.62	B	MG/KG	JA	0.59	B	MG/KG	JA	4.96
36291	10/03/91	BH00471EBU1, BH00470EBU1	SILVER	0.45	U	MG/KG	JA	0.47	U	MG/KG	JA	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	SILVER	0.44	U	MG/KG	V	0.44	U	MG/KG	V	0.00
36491	10/04/91	BH00478EBU1, BH00477EBU1	SILVER	0.46	U	MG/KG	JA	0.45	U	MG/KG	JA	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	SILVER	0.44	U	MG/KG	V	0.46	U	MG/KG	V	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	SILVER	0.47	U	MG/KG	JA	0.44	U	MG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	SILVER	0.50	U	MG/KG	V	0.47	U	MG/KG	JA	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	SILVER	0.43	U	MG/KG	V	0.45	U	MG/KG	JA	0.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	SILVER	0.49	U	MG/KG	V	0.49	U	MG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	SILVER	0.45	U	MG/KG	JA	0.44	U	MG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	SILVER	0.44	U	MG/KG	V	0.46	U	MG/KG	V	0.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	SILVER	0.75	B	MG/KG		1.5	B	MG/KG	JA	66.67
39591	11/20/91	BH00861EBU1, BH00860EBU1	SILVER	0.51	U	MG/KG	V	0.49	U	MG/KG	V	0.00
B300190	02/02/90	B3001900006	SILVER	1.1	UJ	MG/KG	A	2.3	U	MG/KG		0.00
B300790	02/09/90	B3007900004	SILVER	1.1	UJ	MG/KG	A	1.1	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	SILVER	2.3	U	MG/KG	A	2.3	U	MG/KG		0.00
B301490	02/26/90	B3014900812	SILVER	2.5	U	MG/KG	A	2.4	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	SILVER	2.4	U	MG/KG		2.4	U	MG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B303390	07/11/90	B3033900008	SILVER	2.1	U	MG/KG		2.2	U	MG/KG		0.00
B303490	07/12/90	B3034900008	SILVER	2.4	U	MG/KG		2.3	U	MG/KG		0.00
B303590	07/12/90	B3035900009	SILVER	2.2	U	MG/KG		2.2	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 50/52					Percent achieving criteria*: 96.154				
SODIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	SODIUM	286.00	B	MG/KG	V	326.00	B	MG/KG	V	13.07
30691	08/15/91	BH00056EBU1, BH00055EBU1	SODIUM	348.00	B	MG/KG	V	336.00	B	MG/KG	V	3.51
30791	08/16/91	BH00064EBU1, BH00063EBU1	SODIUM	202.00	B	MG/KG	V	340.00	B	MG/KG	V	50.92
30891	08/19/91	BH00073EBU1, BH00070EBU1	SODIUM	222		MG/KG	JA	226		MG/KG	JA	1.79
31091	08/20/91	BH00085EBU1, BH00084EBU1	SODIUM	178		MG/KG	JA	226.00	BE	MG/KG		23.76
31291	08/21/91	BH00094EBU1, BH00091EBU1	SODIUM	194		MG/KG	JA	198		MG/KG	JA	2.04
31591	08/23/91	BH00106EBU1, BH00103EBU1	SODIUM	371.00	BE	MG/KG		362.00	BE	MG/KG		2.46
31691	08/26/91	BH00113EBU1, BH00112EBU1	SODIUM	204		MG/KG	JA	205		MG/KG	JA	0.49
31891	08/27/91	BH00125EBU1, BH00122EBU1	SODIUM	413.00	BE	MG/KG	JA	312.00	BE	MG/KG	JA	27.86
31991	08/28/91	BH00140EBU1, BH00137EBU1	SODIUM	136.00	BE	MG/KG	JA	116.00	BE	MG/KG	JA	15.87
32191	08/30/91	BH00221EBU1, BH00219EBU1	SODIUM	707.00	BE	MG/KG	JA	1060.00	BE	MG/KG	JA	39.95
32491	09/04/91	BH00240EBU1, BH00239EBU1	SODIUM	470	U	MG/KG	JA	622	B	MG/KG	JA	27.84
32691	09/05/91	BH00250EBU1, BH00249EBU1	SODIUM	468	U	MG/KG	JA	462	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	SODIUM	433	U	MG/KG	JA	437	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	SODIUM	447	B	MG/KG	JA	449	B	MG/KG	JA	0.45
33191	09/09/91	BH00275EBU1, BH00274EBU1	SODIUM	458	U	MG/KG	JA	461	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	SODIUM	478	U	MG/KG	V	459	U	MG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	SODIUM	941.00	BE	MG/KG	JA	978.00	BE	MG/KG	JA	3.86
33791	09/12/91	BH00356EBU1, BH00355EBU1	SODIUM	33.90	B	MG/KG	V	37.10	B	MG/KG	V	9.01
33991	09/13/91	BH00365EBU1, BH00364EBU1	SODIUM	336.00	B	MG/KG	V	225.00	B	MG/KG	V	39.57
34091	09/16/91	BH00372EBU1, BH00371EBU1	SODIUM	341.00	B	MG/KG	V	244.00	B	MG/KG	V	33.16
34291	09/16/91	BH00380EBU1, BH00379EBU1	SODIUM	518.00	B	MG/KG	V	200.00	B	MG/KG	V	88.58
34491	09/17/91	BH00386EBU1, BH00385EBU1	SODIUM	319.00	B	MG/KG	V	190.00	B	MG/KG	V	50.69
34691	09/18/91	BH00392EBU1, BH00391EBU1	SODIUM	612.00	BE	MG/KG	JA	408.00	BE	MG/KG	JA	40.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	SODIUM	371.00	B	MG/KG	V	413.00	B	MG/KG	V	10.71
34991	09/20/91	BH00414EBU1, BH00413EBU1	SODIUM	162.00	B	MG/KG	V	287.00	B	MG/KG	V	55.68
35291	09/24/91	BH00423EBU1, BH00422EBU1	SODIUM	325.00	B	MG/KG	V	349.00	B	MG/KG	V	7.12
35391	09/24/91	BH00345EBU1, BH00344EBU1	SODIUM	120.00	B	MG/KG	V	108.00	B	MG/KG	V	10.53
35491	09/24/91	BH00432EBU1, BH00431EBU1	SODIUM	418.00	BE	MG/KG	JA	462.00	BE	MG/KG	JA	10.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	SODIUM	259.00	BE	MG/KG	JA	273.00	BE	MG/KG	JA	5.26
35791	09/27/91	BH00442EBU1, BH00441EBU1	SODIUM	301.00	BE	MG/KG	JA	476.00	BE	MG/KG	JA	45.05
35891	10/01/91	BH00451EBU1, BH00450EBU1	SODIUM	220.00	BE	MG/KG	JA	209.00	BE	MG/KG	JA	5.13
36091	10/02/91	BH00459EBU1, BH00458EBU1	SODIUM	75.90	BE	MG/KG	JA	86.10	BE	MG/KG	JA	12.59
36291	10/03/91	BH00471EBU1, BH00470EBU1	SODIUM	179.00	BE	MG/KG	JA	97.20	BE	MG/KG	JA	59.23
36391	10/04/91	BH00524EBU1, BH00523EBU1	SODIUM	105.00	BE	MG/KG	JA	148.00	BE	MG/KG	JA	33.99
36491	10/04/91	BH00478EBU1, BH00477EBU1	SODIUM	178.00	BE	MG/KG	JA	171.00	BE	MG/KG	JA	4.01
36591	10/07/91	BH00489EBU1, BH00488EBU1	SODIUM	186.00	BE	MG/KG	JA	283.00	BE	MG/KG	JA	41.36
36691	10/10/91	BH00544EBU1, BH00543EBU1	SODIUM	450.00	B	MG/KG	V	408.00	B	MG/KG	V	9.79
36791	10/09/91	BH00600EBU1, BH00499EBU1	SODIUM	257.00	B	MG/KG	V	220.00	B	MG/KG	V	15.51
36891	10/10/91	BH00610EBU1, BH00609EBU1	SODIUM	174.00	B	MG/KG	V	197.00	B	MG/KG	V	12.40
37091	10/14/91	BH00625EBU1, BH00624EBU1	SODIUM	255.00	B	MG/KG	V	542.00	B	MG/KG	V	72.02
37191	10/14/91	BH00561EBU1, BH00560EBU1	SODIUM	539.00	B	MG/KG	JA	518.00	B	MG/KG	V	3.97

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37291	10/15/91	BH00634EBU1, BH00632EBU1	SODIUM	224.00	B	MG/KG	V	195.00	B	MG/KG	V	13.84
37391	10/16/91	BH00651EBU1, BH00650EBU1	SODIUM	152.00	BE	MG/KG	JA	194.00	BE	MG/KG	JA	24.28
37491	10/16/91	BH00577EBU1, BH00576EBU1	SODIUM	242.00	BE	MG/KG		178	B	MG/KG	JA	30.48
39591	11/20/91	BH00861EBU1, BH00860EBU1	SODIUM	218.00	BE	MG/KG	JA	407.00	BE	MG/KG	JA	60.48
B300190	02/02/90	B3001900006	SODIUM	374		MG/KG	V	1150	U	MG/KG		101.84
B300790	02/09/90	B3007900004	SODIUM	1460		MG/KG	V	2150		MG/KG	V	38.23
B301190	02/22/90	B3011900004	SODIUM	1150	U	MG/KG	A	1130	U	MG/KG		0.00
B301490	02/26/90	B3014900812	SODIUM	1230	U	MG/KG	A	1200	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	SODIUM	1210	U	MG/KG		1220	U	MG/KG		0.00
B303390	07/11/90	B3033900008	SODIUM	1070	U	MG/KG		1100	U	MG/KG		0.00
B303490	07/12/90	B3034900008	SODIUM	1180	U	MG/KG		1160	U	MG/KG		0.00
B303590	07/12/90	B3035900009	SODIUM	1090	U	MG/KG		1090	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 44/54					Percent achieving criteria*: 81.481				
STRONTIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	STRONTIUM	97.60		MG/KG	JA	91.50		MG/KG	JA	6.45
30691	08/15/91	BH00056EBU1, BH00055EBU1	STRONTIUM	59.70		MG/KG	JA	66.50		MG/KG	JA	10.78
30791	08/16/91	BH00064EBU1, BH00063EBU1	STRONTIUM	90.60		MG/KG	JA	75.80		MG/KG	JA	17.79
30891	08/19/91	BH00073EBU1, BH00070EBU1	STRONTIUM	114		MG/KG	JA	110		MG/KG	JA	3.57
31091	08/20/91	BH00085EBU1, BH00084EBU1	STRONTIUM	52.2		MG/KG	JA	54.20		MG/KG		3.76
31291	08/21/91	BH00094EBU1, BH00091EBU1	STRONTIUM	72.6		MG/KG	JA	75.6		MG/KG	JA	4.05
31591	08/23/91	BH00106EBU1, BH00103EBU1	STRONTIUM	54.40		MG/KG		64.60		MG/KG		17.14
31691	08/26/91	BH00113EBU1, BH00112EBU1	STRONTIUM	105		MG/KG	JA	109		MG/KG	JA	3.74
31891	08/27/91	BH00125EBU1, BH00122EBU1	STRONTIUM	56.80	E	MG/KG	JA	46.30	E	MG/KG	JA	20.37
31991	08/28/91	BH00140EBU1, BH00137EBU1	STRONTIUM	47.50	E	MG/KG	JA	52.30	E	MG/KG	JA	9.62
32191	08/30/91	BH00221EBU1, BH00219EBU1	STRONTIUM	49.20		MG/KG	JA	136.00		MG/KG	JA	93.74
32491	09/04/91	BH00240EBU1, BH00239EBU1	STRONTIUM	96.5		MG/KG	JA	90.3		MG/KG	JA	6.64
32691	09/05/91	BH00250EBU1, BH00249EBU1	STRONTIUM	43.6	B	MG/KG	JA	23.8	B	MG/KG	JA	58.75
32891	09/06/91	BH00258EBU1, BH00257EBU1	STRONTIUM	57.8		MG/KG	JA	54.9		MG/KG	JA	5.15
32991	09/06/91	BH00265EBU1, BH00264EBU1	STRONTIUM	45.3		MG/KG	JA	64.0		MG/KG	JA	34.22
33191	09/09/91	BH00275EBU1, BH00274EBU1	STRONTIUM	62.4		MG/KG	JA	68.6		MG/KG	JA	9.47
33291	09/10/91	BH00289EBU1, BH00288EBU1	STRONTIUM	102		MG/KG	JA	89.0		MG/KG	JA	13.61
33591	09/11/91	BH00295EBU1, BH00294EBU1	STRONTIUM	85.70		MG/KG	JA	88.10		MG/KG	JA	2.76
33791	09/12/91	BH00356EBU1, BH00355EBU1	STRONTIUM	11.80	B	MG/KG	JA	8.40	B	MG/KG	JA	33.66
33991	09/13/91	BH00365EBU1, BH00364EBU1	STRONTIUM	103.00		MG/KG	JA	60.00		MG/KG	JA	52.76
34091	09/16/91	BH00372EBU1, BH00371EBU1	STRONTIUM	51.70		MG/KG	JA	43.80		MG/KG	JA	16.54
34291	09/16/91	BH00380EBU1, BH00379EBU1	STRONTIUM	56.60		MG/KG	JA	50.10		MG/KG	JA	12.18
34491	09/17/91	BH00386EBU1, BH00385EBU1	STRONTIUM	54.80		MG/KG	JA	42.30	B	MG/KG	JA	25.75
34691	09/18/91	BH00392EBU1, BH00391EBU1	STRONTIUM	61.20		MG/KG	JA	61.40		MG/KG	JA	0.33
34891	09/19/91	BH00405EBU1, BH00403EBU1	STRONTIUM	59.80		MG/KG	JA	68.30		MG/KG	JA	13.27
34991	09/20/91	BH00414EBU1, BH00413EBU1	STRONTIUM	49.50		MG/KG	JA	45.40		MG/KG	JA	8.64
35291	09/24/91	BH00423EBU1, BH00422EBU1	STRONTIUM	57.00		MG/KG	JA	57.80		MG/KG	JA	1.39
35391	09/24/91	BH00345EBU1, BH00344EBU1	STRONTIUM	31.40	B	MG/KG	JA	31.50	B	MG/KG	JA	0.32
35491	09/24/91	BH00432EBU1, BH00431EBU1	STRONTIUM	114.00		MG/KG	JA	109.00		MG/KG	JA	4.48
35591	09/26/91	BH00437EBU1, BH00436EBU1	STRONTIUM	69.80		MG/KG	JA	45.90	B	MG/KG	JA	41.31
35791	09/27/91	BH00442EBU1, BH00441EBU1	STRONTIUM	66.80		MG/KG	JA	47.60		MG/KG	JA	33.57
35891	10/01/91	BH00451EBU1, BH00450EBU1	STRONTIUM	56.70		MG/KG	JA	54.20		MG/KG	JA	4.51
36091	10/02/91	BH00459EBU1, BH00458EBU1	STRONTIUM	30.20	B	MG/KG	JA	36.90	B	MG/KG	JA	19.97

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36291	10/03/91	BH00471EBU1, BH00470EBU1	STRONTIUM	62.30		MG/KG	JA	66.40		MG/KG	JA	6.37
36391	10/04/91	BH00524EBU1, BH00523EBU1	STRONTIUM	60.90		MG/KG	JA	67.90		MG/KG	JA	10.87
36491	10/04/91	BH00478EBU1, BH00477EBU1	STRONTIUM	67.80		MG/KG	JA	62.60		MG/KG	JA	7.98
36591	10/07/91	BH00489EBU1, BH00488EBU1	STRONTIUM	138.00		MG/KG	JA	204.00		MG/KG	JA	38.60
36691	10/10/91	BH00544EBU1, BH00543EBU1	STRONTIUM	47.30	B	MG/KG	JA	42.10	B	MG/KG	JA	11.63
36791	10/09/91	BH00600EBU1, BH00499EBU1	STRONTIUM	54.70		MG/KG	JA	57.80		MG/KG	JA	5.51
36891	10/10/91	BH00610EBU1, BH00609EBU1	STRONTIUM	22.50	B	MG/KG	JA	64.80		MG/KG	JA	96.91
37091	10/14/91	BH00625EBU1, BH00624EBU1	STRONTIUM	43.20	B	MG/KG	V	67.80		MG/KG	V	44.32
37191	10/14/91	BH00561EBU1, BH00560EBU1	STRONTIUM	81.10		MG/KG	JA	64.80		MG/KG	JA	22.34
37291	10/15/91	BH00634EBU1, BH00632EBU1	STRONTIUM	92.80		MG/KG	V	106.00		MG/KG	V	13.28
37391	10/16/91	BH00651EBU1, BH00650EBU1	STRONTIUM	57.00		MG/KG	JA	54.10		MG/KG	JA	5.22
37491	10/16/91	BH00577EBU1, BH00576EBU1	STRONTIUM	32.60	B	MG/KG		33.2	B	MG/KG	JA	1.82
39591	11/20/91	BH00861EBU1, BH00860EBU1	STRONTIUM	71.50		MG/KG	JA	67.20		MG/KG	JA	6.20
B300190	02/02/90	B3001900006	STRONTIUM	226	UJ	MG/KG	A	230	U	MG/KG		0.00
B300790	02/09/90	B3007900004	STRONTIUM	217	UJ	MG/KG	A	230	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	STRONTIUM	229	U	MG/KG	A	226	U	MG/KG		0.00
B301490	02/26/90	B3014900812	STRONTIUM	245	U	MG/KG	A	241	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	STRONTIUM	243	U	MG/KG		243	U	MG/KG		0.00
B303390	07/11/90	B3033900008	STRONTIUM	215	U	MG/KG		220	U	MG/KG		0.00
B303490	07/12/90	B3034900008	STRONTIUM	236	U	MG/KG		231	U	MG/KG		0.00
B303590	07/12/90	B3035900009	STRONTIUM	218	U	MG/KG		218	U	MG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 48/54 Percent achieving criteria*: 88.889

THALLIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	THALLIUM	0.46	U	MG/KG	V	0.49	U	MG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	THALLIUM	0.45	U	MG/KG	V	0.44	U	MG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	THALLIUM	0.43	U	MG/KG	V	0.44	U	MG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	THALLIUM	0.48	U	MG/KG	V	0.46	U	MG/KG	V	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	THALLIUM	0.47	U	MG/KG	JA	0.46		MG/KG	JA	2.15
31291	08/21/91	BH00094EBU1, BH00091EBU1	THALLIUM	0.47		MG/KG	V	0.47	U	MG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	THALLIUM	0.47	U	MG/KG		0.46	U	MG/KG		0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	THALLIUM	0.47	U	MG/KG	V	0.46	U	MG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	THALLIUM	0.46	U	MG/KG	V	0.45	U	MG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	THALLIUM	0.43	U	MG/KG	V	0.43	U	MG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	THALLIUM	0.24	B	MG/KG	V	0.24	U	MG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	THALLIUM	0.23	U	MG/KG	JA	0.29	B	MG/KG	JA	23.08
32691	09/05/91	BH00250EBU1, BH00249EBU1	THALLIUM	0.23	U	MG/KG	JA	0.24	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	THALLIUM	0.36	B	MG/KG	JA	0.36	B	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	THALLIUM	0.27	B	MG/KG	JA	0.28	B	MG/KG	JA	3.64
33191	09/09/91	BH00275EBU1, BH00274EBU1	THALLIUM	0.35	B	MG/KG	JA	0.35	B	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	THALLIUM	0.34	B	MG/KG	V	0.30	B	MG/KG	V	12.50
33591	09/11/91	BH00295EBU1, BH00294EBU1	THALLIUM	0.22	B	MG/KG	JA	0.22	B	MG/KG	V	0.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	THALLIUM	0.21	U	MG/KG	V	0.22	U	MG/KG	V	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	THALLIUM	0.23	B	MG/KG	V	0.22	B	MG/KG	V	4.44
34091	09/16/91	BH00372EBU1, BH00371EBU1	THALLIUM	0.45	B	MG/KG	V	0.22	B	MG/KG	V	68.66
34291	09/16/91	BH00380EBU1, BH00379EBU1	THALLIUM	0.23	B	MG/KG	V	0.24	B	MG/KG	V	4.26
34491	09/17/91	BH00386EBU1, BH00385EBU1	THALLIUM	0.24	B	MG/KG	V	0.24	B	MG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	THALLIUM	0.23	B	MG/KG	V	0.23	B	MG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34891	09/19/91	BH00405EBU1, BH00403EBU1	THALLIUM	0.23	B	MG/KG	V	0.24	B	MG/KG	V	4.26
34991	09/20/91	BH00414EBU1, BH00413EBU1	THALLIUM	0.22	B	MG/KG	V	0.22	B	MG/KG	V	0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	THALLIUM	0.22	B	MG/KG	V	0.22	B	MG/KG	V	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	THALLIUM	0.21	B	MG/KG	V	0.21	B	MG/KG	V	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	THALLIUM	0.24	B	MG/KG	V	0.47	B	MG/KG	V	64.79
35591	09/26/91	BH00437EBU1, BH00436EBU1	THALLIUM	0.22	U	MG/KG	V	0.23	B	MG/KG	V	4.44
35791	09/27/91	BH00442EBU1, BH00441EBU1	THALLIUM	0.22	B	MG/KG	V	0.22	B	MG/KG	V	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	THALLIUM	0.22	B	MG/KG	V	0.23	U	MG/KG	V	4.44
36091	10/02/91	BH00459EBU1, BH00458EBU1	THALLIUM	0.21	U	MG/KG	V	0.22		MG/KG	V	4.65
36291	10/03/91	BH00471EBU1, BH00470EBU1	THALLIUM	0.23	B	MG/KG	V	0.23	B	MG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	THALLIUM	0.21	U	MG/KG	V	0.22	B	MG/KG	V	4.65
36491	10/04/91	BH00478EBU1, BH00477EBU1	THALLIUM	0.23	B	MG/KG	V	0.23	B	MG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	THALLIUM	0.22	UW	MG/KG	JA	0.22	U	MG/KG	V	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	THALLIUM	0.23	BN	MG/KG	JA	0.22	BN	MG/KG	JA	4.44
36791	10/09/91	BH00600EBU1, BH00499EBU1	THALLIUM	0.24	U	MG/KG	V	0.24	U	MG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	THALLIUM	0.22	U	MG/KG	V	0.23	B	MG/KG	V	4.44
37091	10/14/91	BH00625EBU1, BH00624EBU1	THALLIUM	0.22	B	MG/KG	V	0.44	B	MG/KG	V	66.67
37191	10/14/91	BH00561EBU1, BH00560EBU1	THALLIUM	0.24	B	MG/KG	V	0.24	B	MG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	THALLIUM	0.44	B	MG/KG	V	0.23	B	MG/KG	V	62.69
37391	10/16/91	BH00651EBU1, BH00650EBU1	THALLIUM	0.42	B	MG/KG	V	0.48	B	MG/KG	V	13.33
37491	10/16/91	BH00577EBU1, BH00576EBU1	THALLIUM	0.23	B	MG/KG		.23	U	MG/KG	JA	0.00
39591	11/20/91	BH00861EBU1, BH00860EBU1	THALLIUM	0.49	B	MG/KG	V	0.25	B	MG/KG	V	64.86
B300190	02/02/90	B3001900006	THALLIUM	0.59	UJ	MG/KG	A	2.4	U	MG/KG		0.00
B301190	02/22/90	B3011900004	THALLIUM	2.2	U	MG/KG	A	2.3	U	MG/KG		0.00
B301490	02/26/90	B3014900812	THALLIUM	2.5	U	MG/KG	A	2.4	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	THALLIUM	2.4	U	MG/KG		2.4	U	MG/KG		0.00
B303390	07/11/90	B3033900008	THALLIUM	2.1	U	MG/KG		2.1	U	MG/KG		0.00
B303490	07/12/90	B3034900008	THALLIUM	2.4	U	MG/KG		2.3	U	MG/KG		0.00
B303590	07/12/90	B3035900009	THALLIUM	2.2	U	MG/KG		2.2	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 48/53					Percent achieving criteria*: 90.566				
TIN												
30591	08/14/91	BH00049EBU1, BH00047EBU1	TIN	3.30	U	MG/KG	JA	3.30	U	MG/KG	JA	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	TIN	3.20	U	MG/KG	JA	3.10	U	MG/KG	JA	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	TIN	3.10	U	MG/KG	JA	3.10	U	MG/KG	JA	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	TIN	3.3	U	MG/KG	JA	3.2	U	MG/KG	JA	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	TIN	3.2	U	MG/KG	JA	3.2	U	MG/KG	JA	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	TIN	3.30	U	MG/KG		3.30	U	MG/KG		0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	TIN	3.2	U	MG/KG	JA	3.3	U	MG/KG	JA	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	TIN	3.30	U	MG/KG	JA	3.20	U	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	TIN	3.10	U	MG/KG	JA	3.00	U	MG/KG	JA	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	TIN	4.10	U	MG/KG	JA	4.10	U	MG/KG	JA	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	TIN	23.5	U	MG/KG	JA	24.2	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	TIN	23.4	U	MG/KG	JA	23.1	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	TIN	21.6	U	MG/KG	JA	21.9	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	TIN	22.0	U	MG/KG	JA	21.8	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	TIN	22.9	U	MG/KG	JA	23.1	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	TIN	23.9	U	MG/KG	JA	22.9	U	MG/KG	JA	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33791	09/12/91	BH00356EBU1, BH00355EBU1	TIN	3.60	U	MG/KG	JA	3.60	U	MG/KG	JA	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	TIN	3.80	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
34091	09/16/91	BH00372EBU1, BH00371EBU1	TIN	3.90	U	MG/KG	JA	3.70	U	MG/KG	JA	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	TIN	3.90	U	MG/KG	JA	4.00	U	MG/KG	JA	0.00
34491	09/17/91	BH00386EBU1, BH00385EBU1	TIN	4.10	U	MG/KG	JA	4.10	U	MG/KG	JA	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	TIN	3.80	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	TIN	3.90	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	TIN	3.80	UN	MG/KG	JA	3.80	UN	MG/KG	JA	0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	TIN	3.90	U	MG/KG	JA	3.70	U	MG/KG	JA	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	TIN	3.50	U	MG/KG	JA	3.60	U	MG/KG	JA	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	TIN	4.00	U	MG/KG	JA	4.00	U	MG/KG	JA	0.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	TIN	3.90	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
35791	09/27/91	BH00442EBU1, BH00441EBU1	TIN	3.80	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	TIN	3.90	U	MG/KG	JA	3.90	U	MG/KG	JA	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	TIN	3.70	UN	MG/KG	JA	3.70	UN	MG/KG	JA	0.00
36291	10/03/91	BH00471EBU1, BH00470EBU1	TIN	3.90	UN	MG/KG	JA	4.00	UN	MG/KG	JA	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	TIN	3.70	U	MG/KG	JA	3.70	U	MG/KG	JA	0.00
36491	10/04/91	BH00478EBU1, BH00477EBU1	TIN	3.90	UN	MG/KG	JA	3.80	UN	MG/KG	JA	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	TIN	4.00	UN	MG/KG	JA	3.80	UN	MG/KG	JA	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	TIN	4.20	U	MG/KG	JA	4.00	U	MG/KG	JA	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	TIN	3.60	U	MG/KG	JA	3.80	U	MG/KG	JA	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	TIN	3.90	UN	MG/KG	JA	3.70	UN	MG/KG	JA	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	TIN	3.90	UN	MG/KG	JA	3.80	UN	MG/KG	JA	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	TIN	3.80	UN	MG/KG	JA	3.90	UN	MG/KG	JA	0.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	TIN	3.80	U	MG/KG		37.2	U	MG/KG	JA	0.00
39591	11/20/91	BH00861EBU1, BH00860EBU1	TIN	4.30	UN	MG/KG	JA	4.20	UN	MG/KG	JA	0.00
B300190	02/02/90	B3001900006	TIN	22.6	UJ	MG/KG	A	23.0	U	MG/KG		0.00
B300790	02/09/90	B3007900004	TIN	21.7	UJ	MG/KG	A	25.3	J	MG/KG	A	15.32
B301190	02/22/90	B3011900004	TIN	22.9	U	MG/KG	A	22.6	U	MG/KG		0.00
B301490	02/26/90	B3014900812	TIN	24.5	U	MG/KG	A	24.1	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	TIN	24.3	U	MG/KG		24.3	U	MG/KG		0.00
B303390	07/11/90	B3033900008	TIN	21.5	U	MG/KG		22.0	U	MG/KG		0.00
B303490	07/12/90	B3034900008	TIN	23.6	U	MG/KG		23.1	U	MG/KG		0.00
B303590	07/12/90	B3035900009	TIN	21.8	U	MG/KG		21.8	U	MG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 50/50 Percent achieving criteria*: 100.000

ANTIMONY												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ANTIMONY	9.20	BN	MG/KG	JA	9.50	BN	MG/KG	JA	3.21
30691	08/15/91	BH00056EBU1, BH00055EBU1	ANTIMONY	5.40	BN	MG/KG	JA	6.40	BN	MG/KG	JA	16.95
30791	08/16/91	BH00064EBU1, BH00063EBU1	ANTIMONY	12.50	BN	MG/KG	JA	13.90	N	MG/KG	JA	10.61
30891	08/19/91	BH00073EBU1, BH00070EBU1	ANTIMONY	14.8		MG/KG	V	18.4		MG/KG	V	21.69
31091	08/20/91	BH00085EBU1, BH00084EBU1	ANTIMONY	23.20	N	MG/KG		26.70	N	MG/KG		14.03
31291	08/21/91	BH00094EBU1, BH00091EBU1	ANTIMONY	14.6		MG/KG	JA	13.8		MG/KG	JA	5.63
31591	08/23/91	BH00106EBU1, BH00103EBU1	ANTIMONY	19.80	N	MG/KG		20.60	N	MG/KG		3.96
31691	08/26/91	BH00113EBU1, BH00112EBU1	ANTIMONY	6.8		MG/KG	JA	9.8		MG/KG	JA	36.14
31891	08/27/91	BH00125EBU1, BH00122EBU1	ANTIMONY	13.20	BN	MG/KG	JA	13.50	N	MG/KG	JA	2.25
31991	08/28/91	BH00140EBU1, BH00137EBU1	ANTIMONY	7.40	BN	MG/KG	JA	8.10	BN	MG/KG	JA	9.03
32191	08/30/91	BH00221EBU1, BH00219EBU1	ANTIMONY	12.10	BN	MG/KG	JA	14.50	BN	MG/KG	JA	18.05

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32491	09/04/91	BH00240EBU1, BH00239EBU1	ANTIMONY	11.8	U	MG/KG	JA	12.1	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	ANTIMONY	11.7	U	MG/KG	JA	11.5	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	ANTIMONY	10.8	U	MG/KG	JA	10.9	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ANTIMONY	11.0	U	MG/KG	JA	10.9	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	ANTIMONY	11.4	U	MG/KG	JA	11.5	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	ANTIMONY	12.0	U	MG/KG	V	11.5	U	MG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	ANTIMONY	16.80	N	MG/KG	JA	17.50	N	MG/KG	JA	4.08
33791	09/12/91	BH00356EBU1, BH00355EBU1	ANTIMONY	3.10	BN	MG/KG	JA	2.80	BN	MG/KG	JA	10.17
33991	09/13/91	BH00365EBU1, BH00364EBU1	ANTIMONY	12.10	BN	MG/KG	JA	12.00	BN	MG/KG	JA	0.83
34091	09/16/91	BH00372EBU1, BH00371EBU1	ANTIMONY	15.30	N	MG/KG	JA	12.30	BN	MG/KG	JA	21.74
34291	09/16/91	BH00380EBU1, BH00379EBU1	ANTIMONY	8.70	BN	MG/KG	JA	15.60	N	MG/KG	JA	56.79
34491	09/17/91	BH00386EBU1, BH00385EBU1	ANTIMONY	14.50	N	MG/KG	JA	15.40	N	MG/KG	JA	6.02
34691	09/18/91	BH00392EBU1, BH00391EBU1	ANTIMONY	14.10	N	MG/KG	JA	13.80	BN	MG/KG	JA	2.15
34891	09/19/91	BH00405EBU1, BH00403EBU1	ANTIMONY	11.40	BN	MG/KG	JA	14.90	N	MG/KG	JA	26.62
34991	09/20/91	BH00414EBU1, BH00413EBU1	ANTIMONY	18.30	N	MG/KG	JA	19.90	N	MG/KG	JA	8.38
35291	09/24/91	BH00423EBU1, BH00422EBU1	ANTIMONY	15.10	N	MG/KG	JA	17.50	N	MG/KG	JA	14.72
35391	09/24/91	BH00345EBU1, BH00344EBU1	ANTIMONY	14.30	N	MG/KG	JA	15.00	N	MG/KG	JA	4.78
35491	09/24/91	BH00432EBU1, BH00431EBU1	ANTIMONY	16.70	N	MG/KG	JA	14.00	N	MG/KG	JA	17.59
35591	09/26/91	BH00437EBU1, BH00436EBU1	ANTIMONY	10.90	BN	MG/KG	JA	6.40	BN	MG/KG	JA	52.02
35791	09/27/91	BH00442EBU1, BH00441EBU1	ANTIMONY	18.10	N	MG/KG	JA	16.80	N	MG/KG	JA	7.45
35891	10/01/91	BH00451EBU1, BH00450EBU1	ANTIMONY	17.20	N	MG/KG	JA	15.70	N	MG/KG	JA	9.12
36091	10/02/91	BH00459EBU1, BH00458EBU1	ANTIMONY	9.50	BN	MG/KG	JA	10.30	BN	MG/KG	JA	8.08
36291	10/03/91	BH00471EBU1, BH00470EBU1	ANTIMONY	5.80	BN	MG/KG	JA	9.40	BN	MG/KG	JA	47.37
36391	10/04/91	BH00524EBU1, BH00523EBU1	ANTIMONY	15.20	N	MG/KG	JA	14.60	N	MG/KG	JA	4.03
36491	10/04/91	BH00478EBU1, BH00477EBU1	ANTIMONY	19.30	N	MG/KG	JA	18.60	N	MG/KG	JA	3.69
36591	10/07/91	BH00489EBU1, BH00488EBU1	ANTIMONY	14.00	N	MG/KG	JA	13.30	BN	MG/KG	JA	5.13
36691	10/10/91	BH00544EBU1, BH00543EBU1	ANTIMONY	14.10	BN	MG/KG	JA	13.20	BN	MG/KG	JA	6.59
36791	10/09/91	BH00600EBU1, BH00499EBU1	ANTIMONY	13.40	BN	MG/KG	JA	11.50	BN	MG/KG	JA	15.26
36891	10/10/91	BH00610EBU1, BH00609EBU1	ANTIMONY	9.80	BN	MG/KG	JA	17.20	N	MG/KG	JA	54.81
37091	10/14/91	BH00625EBU1, BH00624EBU1	ANTIMONY	12.20	BN	MG/KG	JA	16.50	N	MG/KG	JA	29.97
37191	10/14/91	BH00561EBU1, BH00560EBU1	ANTIMONY	24.80	N	MG/KG	JA	11.30	BN	MG/KG	JA	74.79
37291	10/15/91	BH00634EBU1, BH00632EBU1	ANTIMONY	13.00	BN	MG/KG	JA	8.00	BN	MG/KG	JA	47.62
37391	10/16/91	BH00651EBU1, BH00650EBU1	ANTIMONY	14.60	N	MG/KG	JA	14.20	N	MG/KG	JA	2.78
37491	10/16/91	BH00577EBU1, BH00576EBU1	ANTIMONY	18.70	N	MG/KG		8.5	B	MG/KG	JA	75.00
39591	11/20/91	BH00861EBU1, BH00860EBU1	ANTIMONY	11.00	BN	MG/KG	JA	8.80	BN	MG/KG	JA	22.22
B300190	02/02/90	B3001900006	ANTIMONY	13.7	J	MG/KG	A	17.5		MG/KG		24.36
B300790	02/09/90	B3007900004	ANTIMONY	12.7	UJ	MG/KG	A	19.5	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	ANTIMONY	13.7	U	MG/KG	A	13.6	U	MG/KG		0.00
B301490	02/26/90	B3014900812	ANTIMONY	14.7	U	MG/KG	A	14.5	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	ANTIMONY	22.8		MG/KG		21.7		MG/KG		4.94
B303390	07/11/90	B3033900008	ANTIMONY	25.1		MG/KG		22.0		MG/KG		13.16
B303490	07/12/90	B3034900008	ANTIMONY	14.1	U	MG/KG		13.9	U	MG/KG		0.00
B303590	07/12/90	B3035900009	ANTIMONY	13.1	U	MG/KG		13.1	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 47/54					Percent achieving criteria*: 87.037				
ARSENIC												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ARSENIC	1.90	B	MG/KG	JA	2.90		MG/KG	V	41.67
30691	08/15/91	BH00056EBU1, BH00055EBU1	ARSENIC	2.50		MG/KG	V	2.20		MG/KG	JA	12.77

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30791	08/16/91	BH00064EBU1, BH00063EBU1	ARSENIC	2.20		MG/KG	JA	2.60		MG/KG	V	16.67
30891	08/19/91	BH00073EBU1, BH00070EBU1	ARSENIC	7.9		MG/KG	JA	3.9		MG/KG	JA	67.80
31091	08/20/91	BH00085EBU1, BH00084EBU1	ARSENIC	4.2		MG/KG	JA	4.4		MG/KG	JA	4.65
31291	08/21/91	BH00094EBU1, BH00091EBU1	ARSENIC	1.9		MG/KG	V	1.9		MG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	ARSENIC	2.80		MG/KG		2.50		MG/KG		11.32
31691	08/26/91	BH00113EBU1, BH00112EBU1	ARSENIC	2.8		MG/KG	V	3.7		MG/KG	V	27.69
31891	08/27/91	BH00125EBU1, BH00122EBU1	ARSENIC	4.40	N	MG/KG	JA	3.40	N	MG/KG	JA	25.64
31991	08/28/91	BH00140EBU1, BH00137EBU1	ARSENIC	5.00	N	MG/KG	JA	5.00	N	MG/KG	JA	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	ARSENIC	2.90		MG/KG	V	6.60		MG/KG	V	77.89
32491	09/04/91	BH00240EBU1, BH00239EBU1	ARSENIC	4.4		MG/KG	JA	4.2		MG/KG	JA	4.65
32691	09/05/91	BH00250EBU1, BH00249EBU1	ARSENIC	3.3		MG/KG	JA	8.8		MG/KG	JA	90.91
32891	09/06/91	BH00258EBU1, BH00257EBU1	ARSENIC	5.5		MG/KG	JA	3.3		MG/KG	JA	50.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	ARSENIC	1.1	B	MG/KG	JA	0.82	B	MG/KG	JA	29.17
33191	09/09/91	BH00275EBU1, BH00274EBU1	ARSENIC	2.5		MG/KG	JA	2.1	B	MG/KG	JA	17.39
33291	09/10/91	BH00289EBU1, BH00288EBU1	ARSENIC	3.7		MG/KG	V	2.1	B	MG/KG	V	55.17
33591	09/11/91	BH00295EBU1, BH00294EBU1	ARSENIC	5.20		MG/KG	V	5.30		MG/KG	V	1.90
33791	09/12/91	BH00356EBU1, BH00355EBU1	ARSENIC	3.90		MG/KG	V	3.90		MG/KG	V	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	ARSENIC	3.50		MG/KG	V	2.00	B	MG/KG	V	54.55
34091	09/16/91	BH00372EBU1, BH00371EBU1	ARSENIC	3.60		MG/KG	V	3.50		MG/KG	V	2.82
34291	09/16/91	BH00380EBU1, BH00379EBU1	ARSENIC	1.90	B	MG/KG	V	4.90		MG/KG	V	88.24
34491	09/17/91	BH00386EBU1, BH00385EBU1	ARSENIC	1.90	B	MG/KG	V	1.90	B	MG/KG	V	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	ARSENIC	4.50	N	MG/KG	JA	4.20	N	MG/KG	JA	6.90
34891	09/19/91	BH00405EBU1, BH00403EBU1	ARSENIC	4.10		MG/KG	V	4.70		MG/KG	V	13.64
34991	09/20/91	BH00414EBU1, BH00413EBU1	ARSENIC	4.60	N	MG/KG	JA	4.70	N	MG/KG	JA	2.15
35291	09/24/91	BH00423EBU1, BH00422EBU1	ARSENIC	4.00		MG/KG	V	3.30		MG/KG	V	19.18
35391	09/24/91	BH00345EBU1, BH00344EBU1	ARSENIC	7.80		MG/KG	V	14.70		MG/KG	V	61.33
35491	09/24/91	BH00432EBU1, BH00431EBU1	ARSENIC	3.10		MG/KG	V	2.60		MG/KG	V	17.54
35591	09/26/91	BH00437EBU1, BH00436EBU1	ARSENIC	3.60		MG/KG	V	2.10	B	MG/KG	V	52.63
35791	09/27/91	BH00442EBU1, BH00441EBU1	ARSENIC	4.70		MG/KG	V	4.70		MG/KG	V	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	ARSENIC	3.10		MG/KG	V	2.90		MG/KG	V	6.67
36091	10/02/91	BH00459EBU1, BH00458EBU1	ARSENIC	2.10	N	MG/KG	JA	3.10	N	MG/KG	JA	38.46
36291	10/03/91	BH00471EBU1, BH00470EBU1	ARSENIC	3.40	N	MG/KG	JA	2.50	N	MG/KG	JA	30.51
36391	10/04/91	BH00524EBU1, BH00523EBU1	ARSENIC	2.80	*	MG/KG	V	4.60	*	MG/KG	V	48.65
36491	10/04/91	BH00478EBU1, BH00477EBU1	ARSENIC	4.60		MG/KG	V	4.00	BS	MG/KG	V	13.95
36591	10/07/91	BH00489EBU1, BH00488EBU1	ARSENIC	5.40	*	MG/KG	V	5.60	*	MG/KG	V	3.64
36691	10/10/91	BH00544EBU1, BH00543EBU1	ARSENIC	2.60		MG/KG	V	4.20		MG/KG	V	47.06
36791	10/09/91	BH00600EBU1, BH00499EBU1	ARSENIC	2.70		MG/KG	V	3.40		MG/KG	V	22.95
36891	10/10/91	BH00610EBU1, BH00609EBU1	ARSENIC	5.90		MG/KG	V	4.50		MG/KG	V	26.92
37091	10/14/91	BH00625EBU1, BH00624EBU1	ARSENIC	3.90		MG/KG	V	4.20		MG/KG	V	7.41
37191	10/14/91	BH00561EBU1, BH00560EBU1	ARSENIC	3.70		MG/KG	V	4.40		MG/KG	V	17.28
37291	10/15/91	BH00634EBU1, BH00632EBU1	ARSENIC	3.30		MG/KG	V	3.20		MG/KG	V	3.08
37391	10/16/91	BH00651EBU1, BH00650EBU1	ARSENIC	3.80		MG/KG	V	4.10		MG/KG	V	7.59
37491	10/16/91	BH00577EBU1, BH00576EBU1	ARSENIC	1.80	B	MG/KG		3.8		MG/KG	JA	71.43
39591	11/20/91	BH00861EBU1, BH00860EBU1	ARSENIC	4.90		MG/KG	V	4.20		MG/KG	V	15.38
B300190	02/02/90	B3001900006	ARSENIC	2.7		MG/KG	V	4.4		MG/KG		47.89
B300790	02/09/90	B3007900004	ARSENIC	3.8	J	MG/KG	A	4.6	J	MG/KG	A	19.05
B301190	02/22/90	B3011900004	ARSENIC	3.0		MG/KG	A	3.6		MG/KG		18.18
B301490	02/26/90	B3014900812	ARSENIC	2.5	U	MG/KG	A	4.1		MG/KG	A	48.48

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301790	03/20/90	B3017900408	ARSENIC	4.5		MG/KG		7.5		MG/KG		50.00
B303390	07/11/90	B3033900008	ARSENIC	2.9		MG/KG		5.1		MG/KG		55.00
B303490	07/12/90	B3034900008	ARSENIC	2.9		MG/KG		3.0		MG/KG		3.39
B303590	07/12/90	B3035900009	ARSENIC	5.1		MG/KG		4.5		MG/KG		12.50
			Number achieving RPD criteria* per number of duplicate pairs: 37/54					Percent achieving criteria*: 68.519				
BARIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BARIUM	104.00		MG/KG	V	128.00		MG/KG	V	20.69
30691	08/15/91	BH00056EBU1, BH00055EBU1	BARIUM	47.80		MG/KG	V	40.30	B	MG/KG	V	17.03
30791	08/16/91	BH00064EBU1, BH00063EBU1	BARIUM	83.10		MG/KG	V	280.00		MG/KG	V	108.45
30891	08/19/91	BH00073EBU1, BH00070EBU1	BARIUM	208		MG/KG	V	249		MG/KG	V	17.94
31091	08/20/91	BH00085EBU1, BH00084EBU1	BARIUM	337		MG/KG	JA	210		MG/KG	JA	46.44
31291	08/21/91	BH00094EBU1, BH00091EBU1	BARIUM	76.9		MG/KG	V	90.3		MG/KG	V	16.03
31591	08/23/91	BH00106EBU1, BH00103EBU1	BARIUM	108.00	•	MG/KG		165.00	*	MG/KG		41.76
31691	08/26/91	BH00113EBU1, BH00112EBU1	BARIUM	147		MG/KG	V	138		MG/KG	V	6.32
31891	08/27/91	BH00125EBU1, BH00122EBU1	BARIUM	182.00	EN*	MG/KG	JA	169.00	EN*	MG/KG	JA	7.41
31991	08/28/91	BH00140EBU1, BH00137EBU1	BARIUM	126.00	EN*	MG/KG	JA	140.00	EN*	MG/KG	JA	10.53
32191	08/30/91	BH00221EBU1, BH00219EBU1	BARIUM	135.00		MG/KG	V	595.00		MG/KG	V	126.03
32491	09/04/91	BH00240EBU1, BH00239EBU1	BARIUM	300		MG/KG	JA	236		MG/KG	JA	23.88
32691	09/05/91	BH00250EBU1, BH00249EBU1	BARIUM	177		MG/KG	JA	162		MG/KG	JA	8.85
32891	09/06/91	BH00258EBU1, BH00257EBU1	BARIUM	160		MG/KG	JA	154		MG/KG	JA	3.82
32991	09/06/91	BH00265EBU1, BH00264EBU1	BARIUM	122		MG/KG	JA	224		MG/KG	JA	58.96
33191	09/09/91	BH00275EBU1, BH00274EBU1	BARIUM	314		MG/KG	JA	216		MG/KG	JA	36.98
33291	09/10/91	BH00289EBU1, BH00288EBU1	BARIUM	146		MG/KG	JA	184		MG/KG	JA	23.03
33591	09/11/91	BH00295EBU1, BH00294EBU1	BARIUM	550.00		MG/KG	V	178.00		MG/KG	V	102.20
33791	09/12/91	BH00356EBU1, BH00355EBU1	BARIUM	40.20	B	MG/KG	V	25.80	B	MG/KG	V	43.64
33991	09/13/91	BH00365EBU1, BH00364EBU1	BARIUM	445.00	*	MG/KG	JA	153.00	•	MG/KG	JA	97.66
34091	09/16/91	BH00372EBU1, BH00371EBU1	BARIUM	185.00	•	MG/KG	JA	245.00	•	MG/KG	JA	27.91
34291	09/16/91	BH00380EBU1, BH00379EBU1	BARIUM	75.70	•	MG/KG	JA	166.00	•	MG/KG	JA	74.72
34491	09/17/91	BH00386EBU1, BH00385EBU1	BARIUM	50.70		MG/KG	V	160.00		MG/KG	V	103.75
34691	09/18/91	BH00392EBU1, BH00391EBU1	BARIUM	218.00		MG/KG	V	160.00		MG/KG	V	30.69
34891	09/19/91	BH00405EBU1, BH00403EBU1	BARIUM	169.00		MG/KG	V	252.00		MG/KG	V	39.43
34991	09/20/91	BH00414EBU1, BH00413EBU1	BARIUM	260.00		MG/KG	V	170.00		MG/KG	V	41.86
35291	09/24/91	BH00423EBU1, BH00422EBU1	BARIUM	211.00	•	MG/KG	V	151.00	•	MG/KG	V	33.15
35391	09/24/91	BH00345EBU1, BH00344EBU1	BARIUM	124.00	*	MG/KG	V	112.00	•	MG/KG	V	10.17
35491	09/24/91	BH00432EBU1, BH00431EBU1	BARIUM	112.00		MG/KG	V	112.00		MG/KG	V	0.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	BARIUM	736.00		MG/KG	V	66.20		MG/KG	V	166.99
35791	09/27/91	BH00442EBU1, BH00441EBU1	BARIUM	121.00		MG/KG	V	86.90		MG/KG	V	32.80
35891	10/01/91	BH00451EBU1, BH00450EBU1	BARIUM	151.00	N	MG/KG	JA	125.00	N	MG/KG	JA	18.84
36091	10/02/91	BH00459EBU1, BH00458EBU1	BARIUM	73.00	•	MG/KG	V	69.90	•	MG/KG	V	4.34
36291	10/03/91	BH00471EBU1, BH00470EBU1	BARIUM	255.00	*	MG/KG	V	205.00	•	MG/KG	V	21.74
36391	10/04/91	BH00524EBU1, BH00523EBU1	BARIUM	115.00		MG/KG	V	151.00		MG/KG	V	27.07
36491	10/04/91	BH00478EBU1, BH00477EBU1	BARIUM	219.00		MG/KG	V	202.00		MG/KG	V	8.08
36591	10/07/91	BH00489EBU1, BH00488EBU1	BARIUM	104.00		MG/KG	V	88.50		MG/KG	V	16.10
36691	10/10/91	BH00544EBU1, BH00543EBU1	BARIUM	203.00	N	MG/KG	JA	182.00	N	MG/KG	JA	10.91
36791	10/09/91	BH00600EBU1, BH00499EBU1	BARIUM	145.00	N	MG/KG	JA	122.00	N	MG/KG	JA	17.23
36891	10/10/91	BH00610EBU1, BH00609EBU1	BARIUM	54.10	N	MG/KG	JA	126.00	N	MG/KG	JA	79.84
37091	10/14/91	BH00625EBU1, BH00624EBU1	BARIUM	158.00	N*	MG/KG	JA	150.00	N*	MG/KG	JA	5.19

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37191	10/14/91	BH00561EBU1, BH00560EBU1	BARIUM	719.00		MG/KG	V	345.00		MG/KG	V	70.30
37291	10/15/91	BH00634EBU1, BH00632EBU1	BARIUM	123.00	N*	MG/KG	JA	155.00	N*	MG/KG	JA	23.02
37391	10/16/91	BH00651EBU1, BH00650EBU1	BARIUM	174.00		MG/KG	V	161.00		MG/KG	V	7.76
37491	10/16/91	BH00577EBU1, BH00576EBU1	BARIUM	198.00		MG/KG		135		MG/KG	JA	37.84
39591	11/20/91	BH00861EBU1, BH00860EBU1	BARIUM	143.00		MG/KG	V	129.00		MG/KG	V	10.29
B300190	02/02/90	B3001900006	BARIUM	151	J	MG/KG	A	147		MG/KG		2.68
B300790	02/09/90	B3007900004	BARIUM	316	J	MG/KG	A	228	J	MG/KG	A	32.35
B301190	02/22/90	B3011900004	BARIUM	293		MG/KG	A	245		MG/KG		17.84
B301490	02/26/90	B3014900812	BARIUM	71.4		MG/KG	A	85.4		MG/KG	A	17.86
B301790	03/20/90	B3017900408	BARIUM	165		MG/KG		219		MG/KG		28.13
B303390	07/11/90	B3033900008	BARIUM	81.8		MG/KG		230		MG/KG		95.06
B303490	07/12/90	B3034900008	BARIUM	99.9		MG/KG		136		MG/KG		30.61
B303590	07/12/90	B3035900009	BARIUM	214		MG/KG		215		MG/KG		0.47
			Number achieving RPD criteria* per number of duplicate pairs: 39/54					Percent achieving criteria*: 72.222				
BERYLLIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	BERYLLIUM	0.85	B	MG/KG	JA	0.82	B	MG/KG	JA	3.59
30691	08/15/91	BH00056EBU1, BH00055EBU1	BERYLLIUM	0.53	B	MG/KG	JA	0.48	B	MG/KG	JA	9.90
30791	08/16/91	BH00064EBU1, BH00063EBU1	BERYLLIUM	0.72	B	MG/KG	JA	0.64	B	MG/KG	JA	11.76
30891	08/19/91	BH00073EBU1, BH00070EBU1	BERYLLIUM	0.84		MG/KG	JA	0.90		MG/KG	JA	6.90
31091	08/20/91	BH00085EBU1, BH00084EBU1	BERYLLIUM	1.80		MG/KG		1.90		MG/KG		5.41
31291	08/21/91	BH00094EBU1, BH00091EBU1	BERYLLIUM	0.82		MG/KG	V	0.81		MG/KG	V	1.23
31591	08/23/91	BH00106EBU1, BH00103EBU1	BERYLLIUM	1.60		MG/KG		1.70		MG/KG		6.06
31691	08/26/91	BH00113EBU1, BH00112EBU1	BERYLLIUM	0.73		MG/KG	V	0.68		MG/KG	V	7.09
31891	08/27/91	BH00125EBU1, BH00122EBU1	BERYLLIUM	1.10	B	MG/KG	V	1.00	B	MG/KG	V	9.52
31991	08/28/91	BH00140EBU1, BH00137EBU1	BERYLLIUM	0.86	B	MG/KG	V	0.85	B	MG/KG	V	1.17
32191	08/30/91	BH00221EBU1, BH00219EBU1	BERYLLIUM	0.95	B	MG/KG	V	1.10	B	MG/KG	V	14.63
32491	09/04/91	BH00240EBU1, BH00239EBU1	BERYLLIUM	2.0		MG/KG	JA	1.4		MG/KG	JA	35.29
32691	09/05/91	BH00250EBU1, BH00249EBU1	BERYLLIUM	1.7		MG/KG	JA	1.4		MG/KG	JA	19.35
32891	09/06/91	BH00258EBU1, BH00257EBU1	BERYLLIUM	1.3		MG/KG	JA	1.6		MG/KG	JA	20.69
32991	09/06/91	BH00265EBU1, BH00264EBU1	BERYLLIUM	1.4		MG/KG	JA	1.9		MG/KG	JA	30.30
33191	09/09/91	BH00275EBU1, BH00274EBU1	BERYLLIUM	1.2		MG/KG	JA	1.1	B	MG/KG	JA	8.70
33291	09/10/91	BH00289EBU1, BH00288EBU1	BERYLLIUM	1.3		MG/KG	V	1.5		MG/KG	V	14.29
33591	09/11/91	BH00295EBU1, BH00294EBU1	BERYLLIUM	1.10	B	MG/KG	V	0.99	B	MG/KG	JA	10.53
33791	09/12/91	BH00356EBU1, BH00355EBU1	BERYLLIUM	0.46	B	MG/KG	V	0.27	B	MG/KG	V	52.05
33991	09/13/91	BH00365EBU1, BH00364EBU1	BERYLLIUM	0.98	B	MG/KG	V	0.89	B	MG/KG	V	9.63
34091	09/16/91	BH00372EBU1, BH00371EBU1	BERYLLIUM	0.93	B	MG/KG	V	0.75	B	MG/KG	V	21.43
34291	09/16/91	BH00380EBU1, BH00379EBU1	BERYLLIUM	0.86	B	MG/KG	V	0.97	B	MG/KG	V	12.02
34491	09/17/91	BH00386EBU1, BH00385EBU1	BERYLLIUM	0.69	B	MG/KG	V	0.93	B	MG/KG	V	29.63
34691	09/18/91	BH00392EBU1, BH00391EBU1	BERYLLIUM	1.10		MG/KG	V	1.30		MG/KG	V	16.67
34891	09/19/91	BH00405EBU1, BH00403EBU1	BERYLLIUM	0.94	B	MG/KG	V	1.10	B	MG/KG	V	15.69
34991	09/20/91	BH00414EBU1, BH00413EBU1	BERYLLIUM	1.60		MG/KG	V	1.60		MG/KG	V	0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	BERYLLIUM	0.97	B	MG/KG	V	1.10	B	MG/KG	V	12.56
35391	09/24/91	BH00345EBU1, BH00344EBU1	BERYLLIUM	1.00	B	MG/KG	V	1.00	B	MG/KG	V	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	BERYLLIUM	1.50		MG/KG	JA	1.60		MG/KG	JA	6.45
35591	09/26/91	BH00437EBU1, BH00436EBU1	BERYLLIUM	1.40		MG/KG	JA	1.30		MG/KG	JA	7.41
35791	09/27/91	BH00442EBU1, BH00441EBU1	BERYLLIUM	1.50		MG/KG	JA	1.50		MG/KG	JA	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	BERYLLIUM	1.50		MG/KG	JA	1.40		MG/KG	JA	6.90

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36091	10/02/91	BH00459EBU1, BH00458EBU1	BERYLLIUM	0.41	B	MG/KG	V	0.38	B	MG/KG	V	7.59
36291	10/03/91	BH00471EBU1, BH00470EBU1	BERYLLIUM	0.62	B	MG/KG	V	0.64	B	MG/KG	V	3.17
36391	10/04/91	BH00524EBU1, BH00523EBU1	BERYLLIUM	0.68	B	MG/KG	V	0.73	B	MG/KG	V	7.09
36491	10/04/91	BH00478EBU1, BH00477EBU1	BERYLLIUM	0.96	B	MG/KG	V	0.82	B	MG/KG	V	15.73
36591	10/07/91	BH00489EBU1, BH00488EBU1	BERYLLIUM	0.58	B	MG/KG	V	0.62	B	MG/KG	V	6.67
36691	10/10/91	BH00544EBU1, BH00543EBU1	BERYLLIUM	0.89	B	MG/KG	V	0.83	B	MG/KG	V	6.98
36791	10/09/91	BH00600EBU1, BH00499EBU1	BERYLLIUM	0.72	B	MG/KG	V	0.75	B	MG/KG	V	4.08
36891	10/10/91	BH00610EBU1, BH00609EBU1	BERYLLIUM	0.27	B	MG/KG	V	0.65	B	MG/KG	V	82.61
37091	10/14/91	BH00625EBU1, BH00624EBU1	BERYLLIUM	1.40		MG/KG	JA	1.50		MG/KG	JA	6.90
37191	10/14/91	BH00561EBU1, BH00560EBU1	BERYLLIUM	1.50		MG/KG	JA	0.95	B	MG/KG	V	44.90
37291	10/15/91	BH00634EBU1, BH00632EBU1	BERYLLIUM	1.50		MG/KG	JA	1.30		MG/KG	JA	14.29
37391	10/16/91	BH00651EBU1, BH00650EBU1	BERYLLIUM	1.40		MG/KG	V	1.60		MG/KG	V	13.33
37491	10/16/91	BH00577EBU1, BH00576EBU1	BERYLLIUM	0.84	B	MG/KG		.96	B	MG/KG	JA	13.33
39591	11/20/91	BH00861EBU1, BH00860EBU1	BERYLLIUM	1.40		MG/KG	V	1.50		MG/KG	V	6.90
B300190	02/02/90	B3001900006	BERYLLIUM	0.99	J	MG/KG	A	1.2	U	MG/KG		19.18
B300790	02/09/90	B3007900004	BERYLLIUM	1.3	UJ	MG/KG	A	1.7	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	BERYLLIUM	1.2		MG/KG	A	1.3		MG/KG		8.00
B301490	02/26/90	B3014900812	BERYLLIUM	1.2	U	MG/KG	A	1.2	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	BERYLLIUM	1.3		MG/KG		1.2		MG/KG		8.00
B303390	07/11/90	B3033900008	BERYLLIUM	1.7		MG/KG		1.5		MG/KG		12.50
B303490	07/12/90	B3034900008	BERYLLIUM	1.3		MG/KG		1.4		MG/KG		7.41
B303590	07/12/90	B3035900009	BERYLLIUM	1.3		MG/KG		1.3		MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 51/54					Percent achieving criteria*: 94.444				
CADMIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	CADMIUM	0.24	U	MG/KG	V	0.24	U	MG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	CADMIUM	0.23	U	MG/KG	V	0.22	U	MG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	CADMIUM	0.22	U	MG/KG	JA	0.22	U	MG/KG	JA	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	CADMIUM	0.30		MG/KG	V	0.23	U	MG/KG	V	26.42
31091	08/20/91	BH00085EBU1, BH00084EBU1	CADMIUM	0.81	B	MG/KG		0.71	B	MG/KG		13.16
31291	08/21/91	BH00094EBU1, BH00091EBU1	CADMIUM	0.23	U	MG/KG	V	0.23	U	MG/KG	V	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	CADMIUM	0.54	B	MG/KG		0.59	B	MG/KG		8.85
31691	08/26/91	BH00113EBU1, BH00112EBU1	CADMIUM	0.23	U	MG/KG	V	0.24	U	MG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	CADMIUM	0.23	U	MG/KG	V	0.23	U	MG/KG	V	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	CADMIUM	0.22	U	MG/KG	V	0.21	U	MG/KG	V	0.00
32191	08/30/91	BH00221EBU1, BH00219EBU1	CADMIUM	0.48	U	MG/KG	V	0.48	U	MG/KG	V	0.00
32491	09/04/91	BH00240EBU1, BH00239EBU1	CADMIUM	0.71	U	MG/KG	JA	0.73	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	CADMIUM	0.70	U	MG/KG	JA	0.69	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	CADMIUM	0.65	U	MG/KG	JA	0.66	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	CADMIUM	0.66	U	MG/KG	JA	3.5		MG/KG	JA	136.54
33191	09/09/91	BH00275EBU1, BH00274EBU1	CADMIUM	0.69	U	MG/KG	JA	0.69	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	CADMIUM	0.72	U	MG/KG	V	0.69	U	MG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	CADMIUM	0.45	U	MG/KG	V	0.45	U	MG/KG	V	0.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	CADMIUM	0.42	U	MG/KG	V	0.43	U	MG/KG	V	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	CADMIUM	0.45	U	MG/KG	V	0.45	U	MG/KG	V	0.00
34091	09/16/91	BH00372EBU1, BH00371EBU1	CADMIUM	0.46	U	MG/KG	V	0.43	U	MG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	CADMIUM	0.46	U	MG/KG	V	0.54	B	MG/KG	JA	16.00
34491	09/17/91	BH00386EBU1, BH00385EBU1	CADMIUM	0.48	U	MG/KG	V	0.48	U	MG/KG	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34691	09/18/91	BH00392EBU1, BH00391EBU1	CADMIUM	0.45	U	MG/KG	V	0.46	U	MG/KG	V	0.00
34891	09/19/91	BH00405EBU1, BH00403EBU1	CADMIUM	0.45	U	MG/KG	V	0.60	B	MG/KG	V	28.57
34991	09/20/91	BH00414EBU1, BH00413EBU1	CADMIUM	0.52	B	MG/KG	JA	0.45	B	MG/KG	JA	14.43
35291	09/24/91	BH00423EBU1, BH00422EBU1	CADMIUM	0.45	U	MG/KG	V	0.43	U	MG/KG	V	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	CADMIUM	0.41	U	MG/KG	V	0.42	U	MG/KG	V	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	CADMIUM	0.47	U	MG/KG	V	0.47	U	MG/KG	V	0.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	CADMIUM	0.45	U	MG/KG	V	0.46	U	MG/KG	V	0.00
35791	09/27/91	BH00442EBU1, BH00441EBU1	CADMIUM	0.45	U	MG/KG	V	0.46	U	MG/KG	V	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	CADMIUM	0.46	U	MG/KG	V	0.45	U	MG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	CADMIUM	0.44	U	MG/KG	V	0.43	U	MG/KG	V	0.00
36291	10/03/91	BH00471EBU1, BH00470EBU1	CADMIUM	0.45	U	MG/KG	V	0.47	U	MG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	CADMIUM	0.44	U	MG/KG	V	0.44	U	MG/KG	V	0.00
36491	10/04/91	BH00478EBU1, BH00477EBU1	CADMIUM	0.46	U	MG/KG	V	0.45	U	MG/KG	V	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	CADMIUM	0.44	U	MG/KG	V	0.46	U	MG/KG	V	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	CADMIUM	0.47	U	MG/KG	V	0.44	U	MG/KG	V	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	CADMIUM	0.50	U	MG/KG	V	0.47	U	MG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	CADMIUM	0.43	U	MG/KG	V	0.45	U	MG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	CADMIUM	0.46	U	MG/KG	V	0.44	B	MG/KG	V	4.44
37191	10/14/91	BH00561EBU1, BH00560EBU1	CADMIUM	0.49	UN	MG/KG	V	0.49	UN	MG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	CADMIUM	0.45	U	MG/KG	V	0.48	U	MG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	CADMIUM	0.44	U	MG/KG	V	0.46	U	MG/KG	V	0.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	CADMIUM	0.44	U	MG/KG		.91	U	MG/KG	JA	0.00
39591	11/20/91	BH00861EBU1, BH00860EBU1	CADMIUM	0.51	U	MG/KG	V	0.49	U	MG/KG	V	0.00
B300190	02/02/90	B3001900006	CADMIUM	0.90		MG/KG	V	1.9		MG/KG		71.43
B300790	02/09/90	B3007900004	CADMIUM	0.69	UJ	MG/KG	A	0.73	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	CADMIUM	1.1	U	MG/KG	A	1.1	U	MG/KG		0.00
B301490	02/26/90	B3014900812	CADMIUM	1.2	U	MG/KG	A	1.2	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	CADMIUM	1.2	U	MG/KG		1.2	U	MG/KG		0.00
B303390	07/11/90	B3033900008	CADMIUM	1.1	U	MG/KG		1.1	U	MG/KG		0.00
B303490	07/12/90	B3034900008	CADMIUM	1.2	U	MG/KG		1.2	U	MG/KG		0.00
B303590	07/12/90	B3035900009	CADMIUM	1.1	U	MG/KG		1.1	U	MG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 52/54 Percent achieving criteria*: 96.296

CESIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	CESIUM	21.30	B	MG/KG	JA	21.40	B	MG/KG	JA	0.47
30691	08/15/91	BH00056EBU1, BH00055EBU1	CESIUM	20.70	B	MG/KG	JA	17.90	B	MG/KG	JA	14.51
30791	08/16/91	BH00064EBU1, BH00063EBU1	CESIUM	24.10	B	MG/KG	JA	19.60	B	MG/KG	JA	20.59
30891	08/19/91	BH00073EBU1, BH00070EBU1	CESIUM	16.4		MG/KG	JA	13.9		MG/KG	JA	16.50
31091	08/20/91	BH00085EBU1, BH00084EBU1	CESIUM	30.10	B	MG/KG		27.80	B	MG/KG		7.94
31291	08/21/91	BH00094EBU1, BH00091EBU1	CESIUM	23.1		MG/KG	JA	23.1		MG/KG	JA	0.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	CESIUM	28.10	B	MG/KG		26.00	B	MG/KG		7.76
31691	08/26/91	BH00113EBU1, BH00112EBU1	CESIUM	27.5		MG/KG	JA	23.7		MG/KG	JA	14.84
31891	08/27/91	BH00125EBU1, BH00122EBU1	CESIUM	6.9	U	MG/KG	JA	6.8	U	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	CESIUM	24.40	B	MG/KG	JA	12.80	B	MG/KG	JA	62.37
32491	09/04/91	BH00240EBU1, BH00239EBU1	CESIUM	119	U	MG/KG	JA	294	U	MG/KG	JA	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	CESIUM	117	U	MG/KG	JA	118	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	CESIUM	111	U	MG/KG	JA	113	U	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	CESIUM	110	U	MG/KG	JA	111	U	MG/KG	JA	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33191	09/09/91	BH00275EBU1, BH00274EBU1	CESIUM	114	U	MG/KG	JA	115	U	MG/KG	JA	0.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	CESIUM	120	U	MG/KG	JA	115	U	MG/KG	JA	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	CESIUM	11.2	U	MG/KG	JA	11.4	U	MG/KG	JA	0.00
34091	09/16/91	BH00372EBU1, BH00371EBU1	CESIUM	11.4	U	MG/KG	JA	10.8	U	MG/KG	JA	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	CESIUM	11.6	U	MG/KG	JA	11.8	U	MG/KG	JA	0.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	CESIUM	11.2	U	MG/KG	JA	11.6	U	MG/KG	JA	0.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	CESIUM	11.2	U	MG/KG	JA	11.2	U	MG/KG	JA	0.00
35391	09/24/91	BH00345EBU1, BH00344EBU1	CESIUM	10.,3	U	MG/KG	JA	10.5	U	MG/KG	JA	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	CESIUM	11.8	U	MG/KG	JA	11.7	U	MG/KG	JA	0.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	CESIUM	11.3	U	MG/KG	JA	11.6	U	MG/KG	JA	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	CESIUM	11.0	U	MG/KG	JA	11.4	U	MG/KG	JA	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	CESIUM	10.9	U	MG/KG	JA	10.8	U	MG/KG	JA	0.00
36291	10/03/91	BH00471EBU1, BH00470EBU1	CESIUM	11.4	U	MG/KG	JA	11.8	U	MG/KG	JA	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	CESIUM	11	U	MG/KG	JA	11	U	MG/KG	JA	0.00
36491	10/04/91	BH00478EBU1, BH00477EBU1	CESIUM	11	U	MG/KG	JA	11	U	MG/KG	JA	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	CESIUM	11	U	MG/KG	JA	11	U	MG/KG	JA	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	CESIUM	11.9	U	MG/KG	JA	11.1	U	MG/KG	JA	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	CESIUM	12.4	U	MG/KG	JA	11.8	U	MG/KG	JA	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	CESIUM	10.6	U	MG/KG	JA	11.2	U	MG/KG	JA	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	CESIUM	11.4	U	MG/KG	V	10.8	U	MG/KG	JA	0.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	CESIUM	14.60	B	MG/KG	JA	14.70	B	MG/KG	JA	0.68
37291	10/15/91	BH00634EBU1, BH00632EBU1	CESIUM	11.3	U	MG/KG	JA	11.30	U	MG/KG	JA	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	CESIUM	11	U	MG/KG	JA	12	U	MG/KG	JA	0.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	CESIUM	15.40	B	MG/KG		2.7	B	MG/KG	JA	140.33
39591	11/20/91	BH00861EBU1, BH00860EBU1	CESIUM	13		MG/KG	JA	12		MG/KG	JA	8.00
B300190	02/02/90	B3001900006	CESIUM	226	U	MG/KG	V	230	U	MG/KG		0.00
B300790	02/09/90	B3007900004	CESIUM	217	U	MG/KG	V	230	U	MG/KG	V	0.00
B301190	02/22/90	B3011900004	CESIUM	229	U	MG/KG	A	226	U	MG/KG		0.00
B301490	02/26/90	B3014900812	CESIUM	245	U	MG/KG	A	241	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	CESIUM	243	U	MG/KG		243	U	MG/KG		0.00
B303390	07/11/90	B3033900008	CESIUM	209	U	MG/KG		210	U	MG/KG		0.00
B303490	07/12/90	B3034900008	CESIUM	236	U	MG/KG		233	U	MG/KG		0.00
B303590	07/12/90	B3035900009	CESIUM	218	U	MG/KG		222	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 45/47					Percent achieving criteria*: 95.745				
CHROMIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	CHROMIUM	13.40		MG/KG	V	14.70		MG/KG	V	9.25
30691	08/15/91	BH00056EBU1, BH00055EBU1	CHROMIUM	8.70		MG/KG	V	7.20		MG/KG	V	18.87
30791	08/16/91	BH00064EBU1, BH00063EBU1	CHROMIUM	11.40		MG/KG	V	6.20		MG/KG	JA	59.09
30891	08/19/91	BH00073EBU1, BH00070EBU1	CHROMIUM	13.3		MG/KG	V	13.4		MG/KG	V	0.75
31091	08/20/91	BH00085EBU1, BH00084EBU1	CHROMIUM	20.4		MG/KG	JA	27.0		MG/KG	JA	27.85
31291	08/21/91	BH00094EBU1, BH00091EBU1	CHROMIUM	7.8		MG/KG	V	6.9		MG/KG	V	12.24
31591	08/23/91	BH00106EBU1, BH00103EBU1	CHROMIUM	10.90		MG/KG		11.70		MG/KG		7.08
31691	08/26/91	BH00113EBU1, BH00112EBU1	CHROMIUM	9.6		MG/KG	V	8.7		MG/KG	V	9.84
31891	08/27/91	BH00125EBU1, BH00122EBU1	CHROMIUM	18.60	*	MG/KG	V	19.50	*	MG/KG	V	4.72
31991	08/28/91	BH00140EBU1, BH00137EBU1	CHROMIUM	10.20	*	MG/KG	V	9.60	*	MG/KG	JA	6.06
32191	08/30/91	BH00221EBU1, BH00219EBU1	CHROMIUM	18.40		MG/KG	V	19.10		MG/KG	V	3.73
32491	09/04/91	BH00240EBU1, BH00239EBU1	CHROMIUM	20.2		MG/KG	JA	15.6		MG/KG	JA	25.70

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32691	09/05/91	BH00250EBU1, BH00249EBU1	CHROMIUM	13.5		MG/KG	JA	11.2		MG/KG	JA	18.62
32891	09/06/91	BH00258EBU1, BH00257EBU1	CHROMIUM	12.1		MG/KG	JA	20.7		MG/KG	JA	52.44
32991	09/06/91	BH00265EBU1, BH00264EBU1	CHROMIUM	18.1		MG/KG	JA	22.7		MG/KG	JA	22.55
33191	09/09/91	BH00275EBU1, BH00274EBU1	CHROMIUM	19.5		MG/KG	JA	19.6		MG/KG	JA	0.51
33291	09/10/91	BH00289EBU1, BH00288EBU1	CHROMIUM	18.9		MG/KG	JA	15.4		MG/KG	JA	20.41
33591	09/11/91	BH00295EBU1, BH00294EBU1	CHROMIUM	22.80		MG/KG	V	21.40		MG/KG	V	6.33
33791	09/12/91	BH00356EBU1, BH00355EBU1	CHROMIUM	5.90	•	MG/KG	JA	39.80	•	MG/KG	V	148.36
33991	09/13/91	BH00365EBU1, BH00364EBU1	CHROMIUM	12.10		MG/KG	V	12.00		MG/KG	V	0.83
34091	09/16/91	BH00372EBU1, BH00371EBU1	CHROMIUM	18.70		MG/KG	V	13.40		MG/KG	V	33.02
34291	09/16/91	BH00380EBU1, BH00379EBU1	CHROMIUM	10.60		MG/KG	V	16.00		MG/KG	V	40.60
34491	09/17/91	BH00386EBU1, BH00385EBU1	CHROMIUM	9.20		MG/KG	V	15.00		MG/KG	V	47.93
34691	09/18/91	BH00392EBU1, BH00391EBU1	CHROMIUM	20.80		MG/KG	V	24.00		MG/KG	V	14.29
34891	09/19/91	BH00405EBU1, BH00403EBU1	CHROMIUM	13.20		MG/KG	V	14.30		MG/KG	V	8.00
34991	09/20/91	BH00414EBU1, BH00413EBU1	CHROMIUM	16.30	•	MG/KG	JA	18.50	•	MG/KG	JA	12.64
35291	09/24/91	BH00423EBU1, BH00422EBU1	CHROMIUM	20.30		MG/KG	V	15.70		MG/KG	V	25.56
35391	09/24/91	BH00345EBU1, BH00344EBU1	CHROMIUM	13.90		MG/KG	V	13.10		MG/KG	V	5.93
35491	09/24/91	BH00432EBU1, BH00431EBU1	CHROMIUM	11.30		MG/KG	V	11.50		MG/KG	V	1.75
35591	09/26/91	BH00437EBU1, BH00436EBU1	CHROMIUM	6.60		MG/KG	V	3.70		MG/KG	V	56.31
35791	09/27/91	BH00442EBU1, BH00441EBU1	CHROMIUM	15.80		MG/KG	V	16.60		MG/KG	V	4.94
35891	10/01/91	BH00451EBU1, BH00450EBU1	CHROMIUM	9.80		MG/KG	JA	9.00		MG/KG	JA	8.51
36091	10/02/91	BH00459EBU1, BH00458EBU1	CHROMIUM	11.40		MG/KG	V	9.30		MG/KG	V	20.29
36291	10/03/91	BH00471EBU1, BH00470EBU1	CHROMIUM	6.10		MG/KG	JA	8.30		MG/KG	V	30.56
36391	10/04/91	BH00524EBU1, BH00523EBU1	CHROMIUM	12.40		MG/KG	V	10.60		MG/KG	V	15.65
36491	10/04/91	BH00478EBU1, BH00477EBU1	CHROMIUM	18.40		MG/KG	V	16.00		MG/KG	V	13.95
36591	10/07/91	BH00489EBU1, BH00488EBU1	CHROMIUM	10.40		MG/KG	V	10.40		MG/KG	V	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	CHROMIUM	19.40		MG/KG	JA	18.30		MG/KG	V	5.84
36791	10/09/91	BH00600EBU1, BH00499EBU1	CHROMIUM	10.10		MG/KG	V	10.00		MG/KG	V	1.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	CHROMIUM	4.60		MG/KG	V	8.40		MG/KG	V	58.46
37091	10/14/91	BH00625EBU1, BH00624EBU1	CHROMIUM	18.00		MG/KG	V	22.30		MG/KG	V	21.34
37191	10/14/91	BH00561EBU1, BH00560EBU1	CHROMIUM	20.60		MG/KG	V	20.00		MG/KG	V	2.96
37291	10/15/91	BH00634EBU1, BH00632EBU1	CHROMIUM	10.40		MG/KG	V	8.30		MG/KG	V	22.46
37391	10/16/91	BH00651EBU1, BH00650EBU1	CHROMIUM	16.60	•	MG/KG	V	21.10	•	MG/KG	V	23.87
37491	10/16/91	BH00577EBU1, BH00576EBU1	CHROMIUM	18.90		MG/KG		17.4		MG/KG	JA	8.26
39591	11/20/91	BH00861EBU1, BH00860EBU1	CHROMIUM	8.40		MG/KG	V	8.90		MG/KG	V	5.78
B300190	02/02/90	B3001900006	CHROMIUM	18.1	J	MG/KG	A	22.1		MG/KG		19.90
B300790	02/09/90	B3007900004	CHROMIUM	14.8	J	MG/KG	A	21.0	J	MG/KG	A	34.64
B301190	02/22/90	B3011900004	CHROMIUM	17.5		MG/KG	A	18.8		MG/KG		7.16
B301490	02/26/90	B3014900812	CHROMIUM	11.7		MG/KG	A	10.6		MG/KG	A	9.87
B301790	03/20/90	B3017900408	CHROMIUM	25.3		MG/KG		24.9		MG/KG		1.59
B303390	07/11/90	B3033900008	CHROMIUM	19.1		MG/KG		26.6		MG/KG		32.82
B303490	07/12/90	B3034900008	CHROMIUM	10.7		MG/KG		13.3		MG/KG		21.67
B303590	07/12/90	B3035900009	CHROMIUM	18.2		MG/KG		17.9		MG/KG		1.66

Number achieving RPD criteria* per number of duplicate pairs: 47/54 Percent achieving criteria*: 87.037

COBALT												
30591	08/14/91	BH00049EBU1, BH00047EBU1	COBALT	4.80	B	MG/KG	V	5.70	B	MG/KG	V	17.14
30691	08/15/91	BH00056EBU1, BH00055EBU1	COBALT	3.00	B	MG/KG	V	1.90	B	MG/KG	V	44.90
30791	08/16/91	BH00064EBU1, BH00063EBU1	COBALT	3.80	B	MG/KG	V	5.60	B	MG/KG	V	38.30

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30891	08/19/91	BH00073EBU1, BH00070EBU1	COBALT	8.1		MG/KG	V	9.9		MG/KG	V	20.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	COBALT	12.0		MG/KG	JA	9.70	B	MG/KG		21.20
31291	08/21/91	BH00094EBU1, BH00091EBU1	COBALT	7.8		MG/KG	JA	13.0		MG/KG	JA	50.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	COBALT	9.10	B	MG/KG		7.50	B	MG/KG		19.28
31691	08/26/91	BH00113EBU1, BH00112EBU1	COBALT	6.0		MG/KG	JA	10.1		MG/KG	JA	50.93
31891	08/27/91	BH00125EBU1, BH00122EBU1	COBALT	8.00	B	MG/KG	V	8.10	B	MG/KG	V	1.24
31991	08/28/91	BH00140EBU1, BH00137EBU1	COBALT	6.00	B	MG/KG	V	5.10	B	MG/KG	V	16.22
32191	08/30/91	BH00221EBU1, BH00219EBU1	COBALT	7.30	B	MG/KG	V	9.70	B	MG/KG	V	28.24
32491	09/04/91	BH00240EBU1, BH00239EBU1	COBALT	8.1	B	MG/KG	JA	8.6	B	MG/KG	JA	5.99
32691	09/05/91	BH00250EBU1, BH00249EBU1	COBALT	8.6	B	MG/KG	JA	4.3	B	MG/KG	JA	66.67
32891	09/06/91	BH00258EBU1, BH00257EBU1	COBALT	5.0	B	MG/KG	JA	5.0	B	MG/KG	JA	0.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	COBALT	4.6	B	MG/KG	JA	5.9	B	MG/KG	JA	24.76
33191	09/09/91	BH00275EBU1, BH00274EBU1	COBALT	4.6	B	MG/KG	JA	4.1	B	MG/KG	JA	11.49
33291	09/10/91	BH00289EBU1, BH00288EBU1	COBALT	5.1	B	MG/KG	V	9.0	B	MG/KG	V	55.32
33591	09/11/91	BH00295EBU1, BH00294EBU1	COBALT	8.80	B	MG/KG	V	8.10	B	MG/KG	JA	8.28
33791	09/12/91	BH00356EBU1, BH00355EBU1	COBALT	3.20	B	MG/KG	JA	1.70	B	MG/KG	JA	61.22
33991	09/13/91	BH00365EBU1, BH00364EBU1	COBALT	13.10		MG/KG	V	7.20	B	MG/KG	V	58.13
34091	09/16/91	BH00372EBU1, BH00371EBU1	COBALT	8.20	B	MG/KG	V	7.40	B	MG/KG	V	10.26
34291	09/16/91	BH00380EBU1, BH00379EBU1	COBALT	3.20	B	MG/KG	JA	9.00	B	MG/KG	V	95.08
34491	09/17/91	BH00386EBU1, BH00385EBU1	COBALT	6.90	B	MG/KG	V	7.10	B	MG/KG	V	2.86
34691	09/18/91	BH00392EBU1, BH00391EBU1	COBALT	9.80	B	MG/KG	V	8.50	B	MG/KG	V	14.21
34891	09/19/91	BH00405EBU1, BH00403EBU1	COBALT	8.30	B	MG/KG	V	22.40		MG/KG	V	91.86
34991	09/20/91	BH00414EBU1, BH00413EBU1	COBALT	9.70	B	MG/KG	V	8.40	B	MG/KG	V	14.36
35291	09/24/91	BH00423EBU1, BH00422EBU1	COBALT	7.50	B	MG/KG	V	7.30	B	MG/KG	V	2.70
35391	09/24/91	BH00345EBU1, BH00344EBU1	COBALT	6.40	B	MG/KG	V	6.60	B	MG/KG	V	3.08
35491	09/24/91	BH00432EBU1, BH00431EBU1	COBALT	13.50		MG/KG	V	5.60	B	MG/KG	V	82.72
35591	09/26/91	BH00437EBU1, BH00436EBU1	COBALT	6.80	B	MG/KG	V	7.50	B	MG/KG	V	9.79
35791	09/27/91	BH00442EBU1, BH00441EBU1	COBALT	11.60		MG/KG	V	7.10	B	MG/KG	V	48.13
35891	10/01/91	BH00451EBU1, BH00450EBU1	COBALT	9.00	B	MG/KG	V	6.90	B	MG/KG	V	26.42
36091	10/02/91	BH00459EBU1, BH00458EBU1	COBALT	4.00	B	MG/KG	V	3.30	B	MG/KG	JA	19.18
36291	10/03/91	BH00471EBU1, BH00470EBU1	COBALT	4.80	B	MG/KG	V	9.00	B	MG/KG	V	60.87
36391	10/04/91	BH00524EBU1, BH00523EBU1	COBALT	4.90	B	MG/KG	V	7.20	B	MG/KG	V	38.02
36491	10/04/91	BH00478EBU1, BH00477EBU1	COBALT	9.50	B	MG/KG	V	9.60	B	MG/KG	V	1.05
36591	10/07/91	BH00489EBU1, BH00488EBU1	COBALT	5.50	B	MG/KG	JA	3.30	B	MG/KG	JA	50.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	COBALT	8.50	B	MG/KG	V	7.30	B	MG/KG	V	15.19
36791	10/09/91	BH00600EBU1, BH00499EBU1	COBALT	7.50	B	MG/KG	V	7.80	B	MG/KG	V	3.92
36891	10/10/91	BH00610EBU1, BH00609EBU1	COBALT	2.00	B	MG/KG	JA	9.20	B	MG/KG	V	128.57
37091	10/14/91	BH00625EBU1, BH00624EBU1	COBALT	6.30	B	MG/KG	V	8.10	B	MG/KG	V	25.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	COBALT	36.50		MG/KG	V	8.30	B	MG/KG	V	125.89
37291	10/15/91	BH00634EBU1, BH00632EBU1	COBALT	10.20	B	MG/KG	V	9.40	B	MG/KG	V	8.16
37391	10/16/91	BH00651EBU1, BH00650EBU1	COBALT	8.00	B	MG/KG	V	8.70	B	MG/KG	V	8.38
37491	10/16/91	BH00577EBU1, BH00576EBU1	COBALT	11.20		MG/KG		8.2	B	MG/KG	JA	30.93
39591	11/20/91	BH00861EBU1, BH00860EBU1	COBALT	7.50	B	MG/KG	V	7.10	B	MG/KG	V	5.48
B300190	02/02/90	B3001900006	COBALT	7.4	J	MG/KG	A	11.5	U	MG/KG		43.39
B300790	02/09/90	B3007900004	COBALT	4.1		MG/KG	V	3.8		MG/KG	V	7.59
B301190	02/22/90	B3011900004	COBALT	11.5	U	MG/KG	A	11.3	U	MG/KG		0.00
B301490	02/26/90	B3014900812	COBALT	12.3	U	MG/KG	A	12.0	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	COBALT	12.1	U	MG/KG		12.2	U	MG/KG		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
B303390	07/11/90	B3033900008	COBALT	22.0		MG/KG	11.2		MG/KG	65.06
B303490	07/12/90	B3034900008	COBALT	11.8	U	MG/KG	11.6	U	MG/KG	0.00
B303590	07/12/90	B3035900009	COBALT	10.9	U	MG/KG	10.9	U	MG/KG	0.00

Number achieving RPD criteria* per number of duplicate pairs: 37/54 Percent achieving criteria*: 68.519

COPPER										
30591	08/14/91	BH00049EBU1, BH00047EBU1	COPPER	18.30	MG/KG	V	24.20	MG/KG	V	27.76
30691	08/15/91	BH00056EBU1, BH00055EBU1	COPPER	10.10	MG/KG	JA	8.40	MG/KG	JA	18.38
30791	08/16/91	BH00064EBU1, BH00063EBU1	COPPER	11.20	MG/KG	JA	13.60	MG/KG	JA	19.35
30891	08/19/91	BH00073EBU1, BH00070EBU1	COPPER	20.2	MG/KG	V	23.3	MG/KG	V	14.25
31091	08/20/91	BH00085EBU1, BH00084EBU1	COPPER	16.9	MG/KG	JA	20.90	MG/KG		21.16
31291	08/21/91	BH00094EBU1, BH00091EBU1	COPPER	20.4	MG/KG	V	19.4	MG/KG	V	5.03
31591	08/23/91	BH00106EBU1, BH00103EBU1	COPPER	11.20	MG/KG		11.40	MG/KG		1.77
31691	08/26/91	BH00113EBU1, BH00112EBU1	COPPER	13.5	MG/KG	JA	20.1	MG/KG	V	39.29
31891	08/27/91	BH00125EBU1, BH00122EBU1	COPPER	21.80	MG/KG	JA	22.60	MG/KG	JA	3.60
31991	08/28/91	BH00140EBU1, BH00137EBU1	COPPER	16.90	MG/KG	JA	15.30	MG/KG	JA	9.94
32191	08/30/91	BH00221EBU1, BH00219EBU1	COPPER	25.60	MG/KG	V	32.20	MG/KG	V	22.84
32491	09/04/91	BH00240EBU1, BH00239EBU1	COPPER	64.1	MG/KG	JA	18.4	MG/KG	JA	110.79
32691	09/05/91	BH00250EBU1, BH00249EBU1	COPPER	16.2	MG/KG	JA	13.5	MG/KG	JA	18.18
32891	09/06/91	BH00258EBU1, BH00257EBU1	COPPER	13.4	MG/KG	JA	14.0	MG/KG	JA	4.38
32991	09/06/91	BH00265EBU1, BH00264EBU1	COPPER	13.1	MG/KG	JA	16.4	MG/KG	JA	22.37
33191	09/09/91	BH00275EBU1, BH00274EBU1	COPPER	21.0	MG/KG	JA	17.5	MG/KG	JA	18.18
33291	09/10/91	BH00289EBU1, BH00288EBU1	COPPER	19.3	MG/KG	V	19.7	MG/KG	V	2.05
33591	09/11/91	BH00295EBU1, BH00294EBU1	COPPER	21.60	MG/KG	V	20.80	MG/KG	JA	3.77
33791	09/12/91	BH00356EBU1, BH00355EBU1	COPPER	6.40	MG/KG	JA	15.10	MG/KG	JA	80.93
33991	09/13/91	BH00365EBU1, BH00364EBU1	COPPER	19.20	MG/KG	V	18.10	MG/KG	V	5.90
34091	09/16/91	BH00372EBU1, BH00371EBU1	COPPER	15.50	MG/KG	JA	12.50	MG/KG	JA	21.43
34291	09/16/91	BH00380EBU1, BH00379EBU1	COPPER	18.50	MG/KG	V	22.50	MG/KG	V	19.51
34491	09/17/91	BH00386EBU1, BH00385EBU1	COPPER	17.30	MG/KG	JA	18.00	MG/KG	JA	3.97
34691	09/18/91	BH00392EBU1, BH00391EBU1	COPPER	18.70	MG/KG	V	32.60	MG/KG	V	54.19
34891	09/19/91	BH00405EBU1, BH00403EBU1	COPPER	24.20	MG/KG	V	29.70	MG/KG	V	20.41
34991	09/20/91	BH00414EBU1, BH00413EBU1	COPPER	18.40	MG/KG	V	18.00	MG/KG	V	2.20
35291	09/24/91	BH00423EBU1, BH00422EBU1	COPPER	18.00	MG/KG	V	17.50	MG/KG	V	2.82
35391	09/24/91	BH00345EBU1, BH00344EBU1	COPPER	15.80	MG/KG	V	16.80	MG/KG	V	6.13
35491	09/24/91	BH00432EBU1, BH00431EBU1	COPPER	30.90	MG/KG	V	25.80	MG/KG	V	17.99
35591	09/26/91	BH00437EBU1, BH00436EBU1	COPPER	16.80	MG/KG	V	16.40	MG/KG	V	2.41
35791	09/27/91	BH00442EBU1, BH00441EBU1	COPPER	17.80	MG/KG	V	16.10	MG/KG	V	10.03
35891	10/01/91	BH00451EBU1, BH00450EBU1	COPPER	25.70	MG/KG	V	28.20	MG/KG	V	9.28
36091	10/02/91	BH00459EBU1, BH00458EBU1	COPPER	14.00	MG/KG	V	15.30	MG/KG	V	8.87
36291	10/03/91	BH00471EBU1, BH00470EBU1	COPPER	14.30	MG/KG	V	17.30	MG/KG	V	18.99
36391	10/04/91	BH00524EBU1, BH00523EBU1	COPPER	16.30	MG/KG	V	17.70	MG/KG	V	8.24
36491	10/04/91	BH00478EBU1, BH00477EBU1	COPPER	21.30	MG/KG	V	19.40	MG/KG	V	9.34
36591	10/07/91	BH00489EBU1, BH00488EBU1	COPPER	11.70	MG/KG	JA	8.90	MG/KG	JA	27.18
36691	10/10/91	BH00544EBU1, BH00543EBU1	COPPER	23.00	MG/KG	V	21.80	MG/KG	V	5.36
36791	10/09/91	BH00600EBU1, BH00499EBU1	COPPER	15.80	MG/KG	JA	32.60	MG/KG	V	69.42
36891	10/10/91	BH00610EBU1, BH00609EBU1	COPPER	13.80	MG/KG	V	14.10	MG/KG	V	2.15
37091	10/14/91	BH00625EBU1, BH00624EBU1	COPPER	17.10	MG/KG	V	21.50	MG/KG	V	22.80
37191	10/14/91	BH00561EBU1, BH00560EBU1	COPPER	29.60	MG/KG	JA	18.60	MG/KG	V	45.64

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
37291	10/15/91	BH00634EBU1, BH00632EBU1	COPPER	25.30		MG/KG	V	21.30		MG/KG	V	17.17
37391	10/16/91	BH00651EBU1, BH00650EBU1	COPPER	23.40		MG/KG	V	19.20		MG/KG	V	19.72
37491	10/16/91	BH00577EBU1, BH00576EBU1	COPPER	18.10		MG/KG		10.6		MG/KG	JA	52.26
39591	11/20/91	BH00861EBU1, BH00860EBU1	COPPER	20.80		MG/KG	V	19.10		MG/KG	V	8.52
B300190	02/02/90	B3001900006	COPPER	12.0	J	MG/KG	A	14.0		MG/KG		15.38
B300790	02/09/90	B3007900004	COPPER	12.7		MG/KG	V	14.3		MG/KG	V	11.85
B301190	02/22/90	B3011900004	COPPER	13.8		MG/KG	A	17.0		MG/KG		20.78
B301490	02/26/90	B3014900812	COPPER	14.0		MG/KG	A	15.7		MG/KG	A	11.45
B301790	03/20/90	B3017900408	COPPER	18.1		MG/KG		19.7		MG/KG		8.47
B303390	07/11/90	B3033900008	COPPER	16.6		MG/KG		15.6		MG/KG		6.21
B303490	07/12/90	B3034900008	COPPER	13.6		MG/KG		14.6		MG/KG		7.09
B303590	07/12/90	B3035900009	COPPER	15.3		MG/KG		16.5		MG/KG		7.55
			Number achieving RPD criteria* per number of duplicate pairs: 48/54					Percent achieving criteria*: 88.889				
VANADIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	VANADIUM	27.50		MG/KG	V	29.70		MG/KG	V	7.69
30691	08/15/91	BH00056EBU1, BH00055EBU1	VANADIUM	16.20		MG/KG	V	13.60		MG/KG	V	17.45
30791	08/16/91	BH00064EBU1, BH00063EBU1	VANADIUM	20.80		MG/KG	V	14.90		MG/KG	V	33.05
30891	08/19/91	BH00073EBU1, BH00070EBU1	VANADIUM	23.9		MG/KG	JA	23.9		MG/KG	JA	0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	VANADIUM	32.3		MG/KG	JA	47.5		MG/KG	JA	38.10
31291	08/21/91	BH00094EBU1, BH00091EBU1	VANADIUM	20.2		MG/KG	V	18.0		MG/KG	V	11.52
31591	08/23/91	BH00106EBU1, BH00103EBU1	VANADIUM	21.00	E	MG/KG		21.30	E	MG/KG		1.42
31691	08/26/91	BH00113EBU1, BH00112EBU1	VANADIUM	18.3		MG/KG	V	19.4		MG/KG	V	5.84
31891	08/27/91	BH00125EBU1, BH00122EBU1	VANADIUM	39.60		MG/KG	V	39.40		MG/KG	V	0.51
31991	08/28/91	BH00140EBU1, BH00137EBU1	VANADIUM	26.80		MG/KG	V	25.70		MG/KG	V	4.19
32191	08/30/91	BH00221EBU1, BH00219EBU1	VANADIUM	28.10	E	MG/KG	JA	37.90	E	MG/KG	JA	29.70
32491	09/04/91	BH00240EBU1, BH00239EBU1	VANADIUM	46.7		MG/KG	JA	35.2		MG/KG	JA	28.08
32691	09/05/91	BH00250EBU1, BH00249EBU1	VANADIUM	40.5		MG/KG	JA	33.0		MG/KG	JA	20.41
32891	09/06/91	BH00258EBU1, BH00257EBU1	VANADIUM	21.5		MG/KG	JA	35.4		MG/KG	JA	48.86
32991	09/06/91	BH00265EBU1, BH00264EBU1	VANADIUM	28.9		MG/KG	JA	42.4		MG/KG	JA	37.87
33191	09/09/91	BH00275EBU1, BH00274EBU1	VANADIUM	36.8		MG/KG	JA	49.3		MG/KG	JA	29.04
33291	09/10/91	BH00289EBU1, BH00288EBU1	VANADIUM	44.3		MG/KG	JA	40.4		MG/KG	JA	9.21
33591	09/11/91	BH00295EBU1, BH00294EBU1	VANADIUM	39.90	E	MG/KG	JA	34.80	E	MG/KG	JA	13.65
33791	09/12/91	BH00356EBU1, BH00355EBU1	VANADIUM	15.60		MG/KG	V	8.20	B	MG/KG	V	62.18
33991	09/13/91	BH00365EBU1, BH00364EBU1	VANADIUM	24.60	E	MG/KG	JA	28.30	E	MG/KG	JA	13.99
34091	09/16/91	BH00372EBU1, BH00371EBU1	VANADIUM	37.20	E	MG/KG	JA	28.60	E	MG/KG	JA	26.14
34291	09/16/91	BH00380EBU1, BH00379EBU1	VANADIUM	18.90	E	MG/KG	JA	35.90	E	MG/KG	JA	62.04
34491	09/17/91	BH00386EBU1, BH00385EBU1	VANADIUM	21.00		MG/KG	V	34.90		MG/KG	V	49.73
34691	09/18/91	BH00392EBU1, BH00391EBU1	VANADIUM	39.80		MG/KG	V	42.80		MG/KG	V	7.26
34891	09/19/91	BH00405EBU1, BH00403EBU1	VANADIUM	29.70		MG/KG	V	39.80		MG/KG	V	29.06
34991	09/20/91	BH00414EBU1, BH00413EBU1	VANADIUM	33.40		MG/KG	V	31.60		MG/KG	V	5.54
35291	09/24/91	BH00423EBU1, BH00422EBU1	VANADIUM	29.40		MG/KG	V	32.00		MG/KG	V	8.47
35391	09/24/91	BH00345EBU1, BH00344EBU1	VANADIUM	27.50		MG/KG	V	29.20		MG/KG	V	6.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	VANADIUM	21.70		MG/KG	V	28.90		MG/KG	V	28.46
35591	09/26/91	BH00437EBU1, BH00436EBU1	VANADIUM	17.70		MG/KG	V	15.40		MG/KG	V	13.90
35791	09/27/91	BH00442EBU1, BH00441EBU1	VANADIUM	31.60		MG/KG	V	22.70		MG/KG	V	32.78
35891	10/01/91	BH00451EBU1, BH00450EBU1	VANADIUM	20.20		MG/KG	V	18.60		MG/KG	V	8.25
36091	10/02/91	BH00459EBU1, BH00458EBU1	VANADIUM	21.50	E	MG/KG	JA	19.70	E	MG/KG	JA	8.74

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36291	10/03/91	BH00471EBU1, BH00470EBU1	VANADIUM	12.40	E	MG/KG	JA	17.60	E	MG/KG	JA	34.67
36391	10/04/91	BH00524EBU1, BH00523EBU1	VANADIUM	21.60		MG/KG	V	23.20		MG/KG	V	7.14
36491	10/04/91	BH00478EBU1, BH00477EBU1	VANADIUM	38.40		MG/KG	V	32.90		MG/KG	V	15.43
36591	10/07/91	BH00489EBU1, BH00488EBU1	VANADIUM	20.50		MG/KG	JA	15.10		MG/KG	JA	30.34
36691	10/10/91	BH00544EBU1, BH00543EBU1	VANADIUM	36.10		MG/KG	V	32.40		MG/KG	V	10.80
36791	10/09/91	BH00600EBU1, BH00499EBU1	VANADIUM	26.50		MG/KG	V	24.90		MG/KG	V	6.23
36891	10/10/91	BH00610EBU1, BH00609EBU1	VANADIUM	12.10		MG/KG	V	16.00		MG/KG	V	27.76
37091	10/14/91	BH00625EBU1, BH00624EBU1	VANADIUM	34.50		MG/KG	V	40.40		MG/KG	V	15.75
37191	10/14/91	BH00561EBU1, BH00560EBU1	VANADIUM	76.60		MG/KG	V	34.30		MG/KG	V	76.28
37291	10/15/91	BH00634EBU1, BH00632EBU1	VANADIUM	22.00		MG/KG	V	16.40		MG/KG	V	29.17
37391	10/16/91	BH00651EBU1, BH00650EBU1	VANADIUM	31.00		MG/KG	V	35.80		MG/KG	V	14.37
37491	10/16/91	BH00577EBU1, BH00576EBU1	VANADIUM	30.30	E	MG/KG		28.1		MG/KG	JA	7.53
39591	11/20/91	BH00861EBU1, BH00860EBU1	VANADIUM	22.80		MG/KG	V	21.90		MG/KG	V	4.03
B300190	02/02/90	B3001900006	VANADIUM	35.6	J	MG/KG	A	44.8		MG/KG		22.89
B300790	02/09/90	B3007900004	VANADIUM	34.9	J	MG/KG	A	49.2	J	MG/KG	A	34.01
B301190	02/22/90	B3011900004	VANADIUM	31.8		MG/KG	A	35.9		MG/KG		12.11
B301490	02/26/90	B3014900812	VANADIUM	22.6		MG/KG	A	25.7		MG/KG	A	12.84
B301790	03/20/90	B3017900408	VANADIUM	51.3		MG/KG		56.2		MG/KG		9.12
B303390	07/11/90	B3033900008	VANADIUM	55.6		MG/KG		61.7		MG/KG		10.40
B303490	07/12/90	B3034900008	VANADIUM	27.4		MG/KG		30.9		MG/KG		12.01
B303590	07/12/90	B3035900009	VANADIUM	38.6		MG/KG		39.0		MG/KG		1.03

Number achieving RPD criteria* per number of duplicate pairs: 49/54 Percent achieving criteria*: 90.741

ZINC												
30591	08/14/91	BH00049EBU1, BH00047EBU1	ZINC	68.80	E*	MG/KG	JA	58.60	E*	MG/KG	JA	16.01
30691	08/15/91	BH00056EBU1, BH00055EBU1	ZINC	37.50	E*	MG/KG	JA	30.40	E*	MG/KG	JA	20.91
30791	08/16/91	BH00064EBU1, BH00063EBU1	ZINC	25.30	E*	MG/KG	JA	54.50	E*	MG/KG	JA	73.18
30891	08/19/91	BH00073EBU1, BH00070EBU1	ZINC	50.7		MG/KG	JA	59.2		MG/KG	JA	15.47
31091	08/20/91	BH00085EBU1, BH00084EBU1	ZINC	57.7		MG/KG	JA	58.9		MG/KG	JA	2.06
31291	08/21/91	BH00094EBU1, BH00091EBU1	ZINC	59.2		MG/KG	V	57.9		MG/KG	V	2.22
31591	08/23/91	BH00106EBU1, BH00103EBU1	ZINC	34.20	E	MG/KG		41.80	E	MG/KG		20.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	ZINC	40.9		MG/KG	V	60.2		MG/KG	V	38.18
31891	08/27/91	BH00125EBU1, BH00122EBU1	ZINC	51.50	E	MG/KG	JA	51.00	E	MG/KG	JA	0.98
31991	08/28/91	BH00140EBU1, BH00137EBU1	ZINC	43.00	E	MG/KG	JA	40.90	E	MG/KG	JA	5.01
32191	08/30/91	BH00221EBU1, BH00219EBU1	ZINC	55.20	E	MG/KG	JA	53.60	E	MG/KG	JA	2.94
32491	09/04/91	BH00240EBU1, BH00239EBU1	ZINC	75.7		MG/KG	JA	71.6		MG/KG	JA	5.57
32691	09/05/91	BH00250EBU1, BH00249EBU1	ZINC	41.4		MG/KG	JA	40.7		MG/KG	JA	1.71
32891	09/06/91	BH00258EBU1, BH00257EBU1	ZINC	62.4		MG/KG	JA	60.1		MG/KG	JA	3.76
32991	09/06/91	BH00265EBU1, BH00264EBU1	ZINC	39.7		MG/KG	JA	53.4		MG/KG	JA	29.43
33191	09/09/91	BH00275EBU1, BH00274EBU1	ZINC	67.8		MG/KG	JA	74.9		MG/KG	JA	9.95
33291	09/10/91	BH00289EBU1, BH00288EBU1	ZINC	85.9		MG/KG	V	112		MG/KG	V	26.38
33591	09/11/91	BH00295EBU1, BH00294EBU1	ZINC	57.70	E	MG/KG	JA	52.30	E	MG/KG	JA	9.82
33791	09/12/91	BH00356EBU1, BH00355EBU1	ZINC	10.20		MG/KG	V	6.80		MG/KG	V	40.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	ZINC	74.20	E	MG/KG	V	57.40	E	MG/KG	V	25.53
34091	09/16/91	BH00372EBU1, BH00371EBU1	ZINC	52.60	E	MG/KG	V	40.50	E	MG/KG	V	25.99
34291	09/16/91	BH00380EBU1, BH00379EBU1	ZINC	34.30	E	MG/KG	V	61.00	E	MG/KG	V	56.03
34491	09/17/91	BH00386EBU1, BH00385EBU1	ZINC	73.10	*	MG/KG	V	50.70	*	MG/KG	V	36.19
34691	09/18/91	BH00392EBU1, BH00391EBU1	ZINC	63.30	E	MG/KG	V	67.60	E	MG/KG	V	6.57

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
34891	09/19/91	BH00405EBU1, BH00403EBU1	ZINC	55.90		MG/KG	V	50.20		MG/KG	V	10.74
34991	09/20/91	BH00414EBU1, BH00413EBU1	ZINC	49.20	•	MG/KG	JA	48.60	•	MG/KG	JA	1.23
35291	09/24/91	BH00423EBU1, BH00422EBU1	ZINC	48.10		MG/KG	V	48.60		MG/KG	V	1.03
35391	09/24/91	BH00345EBU1, BH00344EBU1	ZINC	33.90		MG/KG	V	34.00		MG/KG	V	0.29
35491	09/24/91	BH00432EBU1, BH00431EBU1	ZINC	90.20	E*	MG/KG	JA	48.70	E*	MG/KG	JA	59.76
35591	09/26/91	BH00437EBU1, BH00436EBU1	ZINC	46.20	E*	MG/KG	JA	37.30	E*	MG/KG	JA	21.32
35791	09/27/91	BH00442EBU1, BH00441EBU1	ZINC	52.70	E*	MG/KG	JA	46.20	E*	MG/KG	JA	13.14
35891	10/01/91	BH00451EBU1, BH00450EBU1	ZINC	52.40	E	MG/KG	JA	46.90	E	MG/KG	JA	11.08
36091	10/02/91	BH00459EBU1, BH00458EBU1	ZINC	40.20	E	MG/KG	JA	32.30	E	MG/KG	JA	21.79
36291	10/03/91	BH00471EBU1, BH00470EBU1	ZINC	35.10	E	MG/KG	JA	56.40	E	MG/KG	JA	46.56
36391	10/04/91	BH00524EBU1, BH00523EBU1	ZINC	42.80	E	MG/KG	JA	45.90	E	MG/KG	JA	6.99
36491	10/04/91	BH00478EBU1, BH00477EBU1	ZINC	65.30	E	MG/KG	JA	55.40	E	MG/KG	JA	16.40
36591	10/07/91	BH00489EBU1, BH00488EBU1	ZINC	27.60	E	MG/KG	JA	20.00	E	MG/KG	JA	31.93
36691	10/10/91	BH00544EBU1, BH00543EBU1	ZINC	56.30	E	MG/KG	JA	52.30	E	MG/KG	JA	7.37
36791	10/09/91	BH00600EBU1, BH00499EBU1	ZINC	46.70	E*	MG/KG	JA	53.60	E*	MG/KG	JA	13.76
36891	10/10/91	BH00610EBU1, BH00609EBU1	ZINC	20.40	E*	MG/KG	JA	48.40	E*	MG/KG	JA	81.40
37091	10/14/91	BH00625EBU1, BH00624EBU1	ZINC	39.90	E	MG/KG	JA	37.80	E	MG/KG	JA	5.41
37191	10/14/91	BH00561EBU1, BH00560EBU1	ZINC	59.70	E	MG/KG	JA	54.60	E	MG/KG	JA	8.92
37291	10/15/91	BH00634EBU1, BH00632EBU1	ZINC	72.90	E	MG/KG	JA	69.70	E	MG/KG	JA	4.49
37391	10/16/91	BH00651EBU1, BH00650EBU1	ZINC	58.90	E	MG/KG	JA	56.30	E	MG/KG	JA	4.51
37491	10/16/91	BH00577EBU1, BH00576EBU1	ZINC	44.70	E	MG/KG		29.6		MG/KG	JA	40.65
39591	11/20/91	BH00861EBU1, BH00860EBU1	ZINC	57.70	E	MG/KG	JA	51.30	E	MG/KG	JA	11.74
B300190	02/02/90	B3001900006	ZINC	47.6	J	MG/KG	A	50.3		MG/KG		5.52
B300790	02/09/90	B3007900004	ZINC	74.1	J	MG/KG	A	81.2	J	MG/KG	A	9.14
B301190	02/22/90	B3011900004	ZINC	47.8		MG/KG	A	52.0		MG/KG		8.42
B301490	02/26/90	B3014900812	ZINC	49.0		MG/KG	A	60.2		MG/KG	A	20.51
B301790	03/20/90	B3017900408	ZINC	68.4		MG/KG		73.8		MG/KG		7.59
B303390	07/11/90	B3033900008	ZINC	113		MG/KG		116		MG/KG		2.62
B303490	07/12/90	B3034900008	ZINC	52.7		MG/KG		64.0		MG/KG		19.37
B303590	07/12/90	B3035900009	ZINC	69.2		MG/KG		68.9		MG/KG		0.43
			Number achieving RPD criteria* per number of duplicate pairs: 48/54					Percent achieving criteria*: 88.889				
CALCIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	CALCIUM	22900.00		MG/KG	V	13400.00		MG/KG	V	52.34
30691	08/15/91	BH00056EBU1, BH00055EBU1	CALCIUM	9160.00		MG/KG	V	12800.00		MG/KG	V	33.15
30791	08/16/91	BH00064EBU1, BH00063EBU1	CALCIUM	44100.00		MG/KG	V	9560.00		MG/KG	V	128.74
30891	08/19/91	BH00073EBU1, BH00070EBU1	CALCIUM	29500		MG/KG	V	21500		MG/KG	V	31.37
31091	08/20/91	BH00085EBU1, BH00084EBU1	CALCIUM	5160		MG/KG	JA	5550		MG/KG	JA	7.28
31291	08/21/91	BH00094EBU1, BH00091EBU1	CALCIUM	4530		MG/KG	JA	5080		MG/KG	JA	11.45
31591	08/23/91	BH00106EBU1, BH00103EBU1	CALCIUM	11000.00	E	MG/KG		16500.00	E	MG/KG		40.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	CALCIUM	8880		MG/KG	JA	9160		MG/KG	JA	3.10
31891	08/27/91	BH00125EBU1, BH00122EBU1	CALCIUM	10800.00	E	MG/KG	JA	6060.00	E	MG/KG	JA	56.23
31991	08/28/91	BH00140EBU1, BH00137EBU1	CALCIUM	7510.00	E	MG/KG	JA	9060.00	E	MG/KG	JA	18.71
32191	08/30/91	BH00221EBU1, BH00219EBU1	CALCIUM	5080.00	E	MG/KG	JA	27800.00	E	MG/KG	JA	138.20
32491	09/04/91	BH00240EBU1, BH00239EBU1	CALCIUM	7810		MG/KG	JA	11200		MG/KG	JA	35.67
32691	09/05/91	BH00250EBU1, BH00249EBU1	CALCIUM	11500		MG/KG	JA	9520		MG/KG	JA	18.84
32891	09/06/91	BH00258EBU1, BH00257EBU1	CALCIUM	8780		MG/KG	JA	13400		MG/KG	JA	41.66
32991	09/06/91	BH00265EBU1, BH00264EBU1	CALCIUM	7870		MG/KG	JA	16300		MG/KG	JA	69.76

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
33191	09/09/91	BH00275EBU1, BH00274EBU1	CALCIUM	8230		MG/KG	JA	7940		MG/KG	JA	3.59
33291	09/10/91	BH00289EBU1, BH00288EBU1	CALCIUM	6840		MG/KG	V	6780		MG/KG	V	0.88
33591	09/11/91	BH00295EBU1, BH00294EBU1	CALCIUM	34700.00	E	MG/KG	JA	58800.00	E	MG/KG	JA	51.55
33791	09/12/91	BH00356EBU1, BH00355EBU1	CALCIUM	4540.00	E	MG/KG	JA	3650.00	E	MG/KG	JA	21.73
33991	09/13/91	BH00365EBU1, BH00364EBU1	CALCIUM	19300.00	*	MG/KG	JA	6770.00	*	MG/KG	JA	96.13
34091	09/16/91	BH00372EBU1, BH00371EBU1	CALCIUM	8260.00	*	MG/KG	JA	7990.00	*	MG/KG	JA	3.32
34291	09/16/91	BH00380EBU1, BH00379EBU1	CALCIUM	8410.00	*	MG/KG	JA	7200.00	*	MG/KG	JA	15.50
34491	09/17/91	BH00386EBU1, BH00385EBU1	CALCIUM	5830.00	E	MG/KG	JA	5370.00	E	MG/KG	JA	8.21
34691	09/18/91	BH00392EBU1, BH00391EBU1	CALCIUM	5930.00	E	MG/KG	V	7910.00	E	MG/KG	V	28.61
34891	09/19/91	BH00405EBU1, BH00403EBU1	CALCIUM	7640.00		MG/KG	V	7150.00		MG/KG	V	6.63
34991	09/20/91	BH00414EBU1, BH00413EBU1	CALCIUM	8190.00		MG/KG	V	5360.00		MG/KG	V	41.77
35291	09/24/91	BH00423EBU1, BH00422EBU1	CALCIUM	7460.00		MG/KG	V	8180.00		MG/KG	V	9.21
35391	09/24/91	BH00345EBU1, BH00344EBU1	CALCIUM	4050.00		MG/KG	V	4320.00		MG/KG	V	6.45
35491	09/24/91	BH00432EBU1, BH00431EBU1	CALCIUM	21100.00		MG/KG	V	24600.00		MG/KG	V	15.32
35591	09/26/91	BH00437EBU1, BH00436EBU1	CALCIUM	10600.00		MG/KG	V	5730.00		MG/KG	V	59.64
35791	09/27/91	BH00442EBU1, BH00441EBU1	CALCIUM	17700.00		MG/KG	V	9620.00		MG/KG	V	59.15
35891	10/01/91	BH00451EBU1, BH00450EBU1	CALCIUM	11900.00		MG/KG	V	10800.00		MG/KG	V	9.69
36091	10/02/91	BH00459EBU1, BH00458EBU1	CALCIUM	10300.00	E	MG/KG	V	9900.00	E	MG/KG	V	3.96
36291	10/03/91	BH00471EBU1, BH00470EBU1	CALCIUM	7190.00	E	MG/KG	V	12300.00	E	MG/KG	V	52.44
36391	10/04/91	BH00524EBU1, BH00523EBU1	CALCIUM	24500.00	*	MG/KG	V	21200.00	*	MG/KG	V	14.44
36491	10/04/91	BH00478EBU1, BH00477EBU1	CALCIUM	9370.00	*	MG/KG	V	12100.00	*	MG/KG	V	25.43
36591	10/07/91	BH00489EBU1, BH00488EBU1	CALCIUM	61300.00	*	MG/KG	V	82100.00	*	MG/KG	V	29.01
36691	10/10/91	BH00544EBU1, BH00543EBU1	CALCIUM	9470.00		MG/KG	V	5100.00		MG/KG	V	59.99
36791	10/09/91	BH00600EBU1, BH00499EBU1	CALCIUM	14300.00	*	MG/KG	JA	14900.00	*	MG/KG	JA	4.11
36891	10/10/91	BH00610EBU1, BH00609EBU1	CALCIUM	6630.00	*	MG/KG	JA	18700.00	*	MG/KG	JA	95.30
37091	10/14/91	BH00625EBU1, BH00624EBU1	CALCIUM	9560.00		MG/KG	V	22700.00		MG/KG	V	81.46
37191	10/14/91	BH00561EBU1, BH00560EBU1	CALCIUM	23900.00		MG/KG	V	14500.00		MG/KG	V	48.96
37291	10/15/91	BH00634EBU1, BH00632EBU1	CALCIUM	8660.00		MG/KG	V	4520.00		MG/KG	V	62.82
37391	10/16/91	BH00651EBU1, BH00650EBU1	CALCIUM	13400.00	*	MG/KG	JA	6840.00	*	MG/KG	JA	64.82
37491	10/16/91	BH00577EBU1, BH00576EBU1	CALCIUM	3660.00	*	MG/KG		3980		MG/KG	JA	8.38
39591	11/20/91	BH00861EBU1, BH00860EBU1	CALCIUM	10100.00		MG/KG	V	6370.00		MG/KG	V	45.29
B300190	02/02/90	B3001900006	CALCIUM	24600	J	MG/KG	A	7630		MG/KG		105.31
B300790	02/09/90	B3007900004	CALCIUM	23400		MG/KG	V	36600		MG/KG	V	44.00
B301190	02/22/90	B3011900004	CALCIUM	4700		MG/KG	A	4800		MG/KG		2.11
B301490	02/26/90	B3014900812	CALCIUM	13200		MG/KG	A	12500		MG/KG	A	5.45
B301790	03/20/90	B3017900408	CALCIUM	6450		MG/KG		5800		MG/KG		10.61
B303390	07/11/90	B3033900008	CALCIUM	17600		MG/KG		7030		MG/KG		85.83
B303490	07/12/90	B3034900008	CALCIUM	23700		MG/KG		29900		MG/KG		23.13
B303590	07/12/90	B3035900009	CALCIUM	16000		MG/KG		11100		MG/KG		36.16

Number achieving RPD criteria* per number of duplicate pairs: 32/54 Percent achieving criteria*: 59.259

SELENIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	SELENIUM	0.23	U	MG/KG	V	0.24	U	MG/KG	V	0.00
30691	08/15/91	BH00056EBU1, BH00055EBU1	SELENIUM	0.23	U	MG/KG	V	0.22	U	MG/KG	V	0.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	SELENIUM	0.22	B	MG/KG	V	0.22	U	MG/KG	V	0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	SELENIUM	0.24		MG/KG	V	0.23	U	MG/KG	V	4.26
31091	08/20/91	BH00085EBU1, BH00084EBU1	SELENIUM	0.23	U	MG/KG	JA	0.23	U	MG/KG	JA	0.00
31291	08/21/91	BH00094EBU1, BH00091EBU1	SELENIUM	0.24	U	MG/KG	V	0.23		MG/KG	V	4.26

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G14-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
31591	08/23/91	BH00106EBU1, BH00103EBU1	SELENIUM	0.23	UN	MG/KG		0.23	UN	MG/KG		0.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	SELENIUM	0.23	U	MG/KG	V	0.23		MG/KG	V	0.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	SELENIUM	0.23	BN	MG/KG	JA	0.23	BN	MG/KG	JA	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	SELENIUM	0.43	BN	MG/KG	JA	0.22	BN	MG/KG	JA	64.62
32191	08/30/91	BH00221EBU1, BH00219EBU1	SELENIUM	0.48	U	MG/KG	V	0.49	B	MG/KG	V	2.06
32691	09/04/91	BH00240EBU1, BH00239EBU1	SELENIUM	0.39	B	MG/KG	JA	0.38	B	MG/KG	JA	2.60
32691	09/05/91	BH00250EBU1, BH00249EBU1	SELENIUM	0.23	U	MG/KG	JA	0.24	U	MG/KG	JA	0.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	SELENIUM	0.27	B	MG/KG	JA	0.23	U	MG/KG	JA	16.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	SELENIUM	0.21	U	MG/KG	JA	0.24	U	MG/KG	JA	0.00
33191	09/09/91	BH00275EBU1, BH00274EBU1	SELENIUM	0.22	U	MG/KG	JA	0.33	B	MG/KG	JA	40.00
33291	09/10/91	BH00289EBU1, BH00288EBU1	SELENIUM	0.23	U	MG/KG	V	0.23	U	MG/KG	V	0.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	SELENIUM	0.45	UW	MG/KG	V	0.44	U	MG/KG	V	0.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	SELENIUM	0.41	UN	MG/KG	JA	0.43	UN	MG/KG	JA	0.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	SELENIUM	0.46	B	MG/KG	V	0.44	U	MG/KG	V	4.44
34091	09/16/91	BH00372EBU1, BH00371EBU1	SELENIUM	0.45	U	MG/KG	V	0.43	U	MG/KG	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	SELENIUM	0.46	U	MG/KG	V	0.47	B	MG/KG	V	2.15
34491	09/17/91	BH00386EBU1, BH00385EBU1	SELENIUM	0.48	U	MG/KG	V	0.96	B	MG/KG	V	66.67
34691	09/18/91	BH00392EBU1, BH00391EBU1	SELENIUM	0.45	U	MG/KG	V	0.47	BW	MG/KG	JA	4.35
34891	09/19/91	BH00405EBU1, BH00403EBU1	SELENIUM	0.69	BW	MG/KG	JA	0.71	B	MG/KG	V	2.86
34991	09/20/91	BH00414EBU1, BH00413EBU1	SELENIUM	0.44	B	MG/KG	V	0.45	B	MG/KG	V	2.25
35291	09/24/91	BH00423EBU1, BH00422EBU1	SELENIUM	0.45	BN	MG/KG	JA	0.43	BN	MG/KG	JA	4.55
35391	09/24/91	BH00345EBU1, BH00344EBU1	SELENIUM	0.41	UN	MG/KG	JA	0.42	UN	MG/KG	JA	0.00
35491	09/24/91	BH00432EBU1, BH00431EBU1	SELENIUM	0.48	B	MG/KG	V	0.47	B	MG/KG	V	2.11
35591	09/26/91	BH00437EBU1, BH00436EBU1	SELENIUM	0.44	B	MG/KG	V	0.46	U	MG/KG	V	4.44
35791	09/27/91	BH00442EBU1, BH00441EBU1	SELENIUM	0.45	B	MG/KG	V	0.45	U	MG/KG	V	0.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	SELENIUM	0.44	UW	MG/KG	V	0.46	U	MG/KG	V	0.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	SELENIUM	0.43	U	MG/KG	V	0.44	U	MG/KG	V	0.00
36291	10/03/91	BH00471EBU1, BH00470EBU1	SELENIUM	0.46	U	MG/KG	V	0.46	B	MG/KG	V	0.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	SELENIUM	0.43	UWN	MG/KG	JA	0.44	UWN	MG/KG	JA	0.00
36491	10/04/91	BH00478EBU1, BH00477EBU1	SELENIUM	0.46	UWN	MG/KG	JA	0.45	UWN	MG/KG	JA	0.00
36591	10/07/91	BH00489EBU1, BH00488EBU1	SELENIUM	0.45	UWN	MG/KG	JA	0.45	UWN	MG/KG	JA	0.00
36691	10/10/91	BH00544EBU1, BH00543EBU1	SELENIUM	0.47	UN	MG/KG	JA	0.45	UN	MG/KG	JA	0.00
36791	10/09/91	BH00600EBU1, BH00499EBU1	SELENIUM	0.49	U	MG/KG	V	0.48	U	MG/KG	V	0.00
36891	10/10/91	BH00610EBU1, BH00609EBU1	SELENIUM	0.43	U	MG/KG	V	0.45	U	MG/KG	V	0.00
37091	10/14/91	BH00625EBU1, BH00624EBU1	SELENIUM	0.44	U	MG/KG	V	0.44	U	MG/KG	V	0.00
37191	10/14/91	BH00561EBU1, BH00560EBU1	SELENIUM	0.49	B	MG/KG	V	0.49	U	MG/KG	V	0.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	SELENIUM	0.44	U	MG/KG	V	0.46	UW	MG/KG	V	0.00
37391	10/16/91	BH00651EBU1, BH00650EBU1	SELENIUM	0.42	U	MG/KG	V	0.48	U	MG/KG	V	0.00
37491	10/16/91	BH00577EBU1, BH00576EBU1	SELENIUM	0.45	U	MG/KG		.23	U	MG/KG	JA	0.00
39591	11/20/91	BH00861EBU1, BH00860EBU1	SELENIUM	0.49	U	MG/KG	V	0.49	U	MG/KG	V	0.00
B300190	02/02/90	B3001900006	SELENIUM	0.38	UJ	MG/KG	A	1.2	U	MG/KG		0.00
B300790	02/09/90	B3007900004	SELENIUM	0.39	UJ	MG/KG	A	0.40	UJ	MG/KG	A	0.00
B301190	02/22/90	B3011900004	SELENIUM	1.1	U	MG/KG	A	1.2	U	MG/KG		0.00
B301490	02/26/90	B3014900812	SELENIUM	1.2	U	MG/KG	A	1.2	U	MG/KG	A	0.00
B301790	03/20/90	B3017900408	SELENIUM	1.2	U	MG/KG		1.2	U	MG/KG		0.00
B303390	07/11/90	B3033900008	SELENIUM	1.0	U	MG/KG		1.0	U	MG/KG		0.00
B303490	07/12/90	B3034900008	SELENIUM	1.2	U	MG/KG		1.2	U	MG/KG		0.00
B303590	07/12/90	B3035900009	SELENIUM	1.1	U	MG/KG		5.6	U	MG/KG		0.00

Number achieving RPD criteria* per number of duplicate pairs: 52/54 Percent achieving criteria*: 96.296

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
6986	08/20/91	GW01692IT, GW01695IT	ALUMINUM	82.70	B	UG/L		76.10	B	UG/L		8.31
6886	05/23/90	G68860523021005, G68860523021045	ALUMINUM	46.1	B	UG/L		22.1	U	UG/L		70.38
6886	08/01/90	GW00187IT, GW00190IT	ALUMINUM	48.90	BE	UG/L		101.00	BE	UG/L		69.51
6886	05/14/91	GW01286IT, GW01289IT	ALUMINUM	11.00	U	UG/L	V	19.50	B	UG/L	JA	55.74
6886	11/25/91	GW02058IT, GW02060IT	ALUMINUM	28.20	B	UG/L		32.70	B	UG/L		14.78
6886	02/26/92	GW02381IT, GW02383IT	ALUMINUM	20.10	B	UG/L	JA	14.60	B	UG/L	JA	31.70
6886	05/15/92	GW02825IT, GW02827IT	ALUMINUM	18.90	B	UG/L	JA	12.60	B	UG/L	JA	40.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/7					Percent achieving criteria*: 28.571				
IRON												
6986	08/20/91	GW01692IT, GW01695IT	IRON	4.90	B	UG/L		2.60	B	UG/L		61.33
6886	05/23/90	G68860523021005, G68860523021045	IRON	172		UG/L		42.8	B	UG/L		120.30
6886	08/01/90	GW00187IT, GW00190IT	IRON	1190.00		UG/L		1310.00		UG/L		9.60
6886	05/14/91	GW01286IT, GW01289IT	IRON	833.00		UG/L	V	911.00		UG/L	V	8.94
6886	11/25/91	GW02058IT, GW02060IT	IRON	472.00		UG/L		508.00		UG/L		7.35
6886	02/26/92	GW02381IT, GW02383IT	IRON	81.90	BE	UG/L	JA	65.80	BE	UG/L	JA	21.80
6886	05/15/92	GW02825IT, GW02827IT	IRON	170.00	E	UG/L	JA	213.00	E	UG/L	JA	22.45
			Number achieving RPD criteria* per number of duplicate pairs: 5/7					Percent achieving criteria*: 71.429				
LEAD												
6986	08/20/91	GW01692IT, GW01695IT	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	LEAD	2.6	B	UG/L		2.6	B	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	LEAD	1.00	U	UG/L	V	1.00	UW	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	LEAD	1.00	U	UG/L	V	1.00	UW	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	LEAD	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
LITHIUM												
6986	08/20/91	GW01692IT, GW01695IT	LITHIUM	43.10	B	UG/L		42.90	B	UG/L		0.47
6886	05/23/90	G68860523021005, G68860523021045	LITHIUM	2.0	U	UG/L		2.0	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	LITHIUM	12.70	B	UG/L		9.30	B	UG/L		30.91
6886	05/14/91	GW01286IT, GW01289IT	LITHIUM	4.80	B	UG/L	V	4.30	B	UG/L	V	10.99
6886	11/25/91	GW02058IT, GW02060IT	LITHIUM	3.90	B	UG/L		4.10	B	UG/L		5.00
6886	02/26/92	GW02381IT, GW02383IT	LITHIUM	2.80	B	UG/L	V	3.20	B	UG/L	V	13.33
6886	05/15/92	GW02825IT, GW02827IT	LITHIUM	5.10	B	UG/L	V	4.40	B	UG/L	V	14.74
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
MAGNESIUM												
6986	08/20/91	GW01692IT, GW01695IT	MAGNESIUM	31900.00		UG/L		31300.00		UG/L		1.90
6886	05/23/90	G68860523021005, G68860523021045	MAGNESIUM	8760		UG/L		8740		UG/L		0.23
6886	08/01/90	GW00187IT, GW00190IT	MAGNESIUM	8010.00	E	UG/L		8190.00	E	UG/L		2.22
6886	05/14/91	GW01286IT, GW01289IT	MAGNESIUM	8600.00		UG/L	V	9460.00		UG/L	V	9.52
6886	11/25/91	GW02058IT, GW02060IT	MAGNESIUM	8830.00		UG/L		9140.00		UG/L		3.45
6886	02/26/92	GW02381IT, GW02383IT	MAGNESIUM	9630.00		UG/L	V	9530.00		UG/L	V	1.04
6886	05/15/92	GW02825IT, GW02827IT	MAGNESIUM	8840.00		UG/L	V	8520.00		UG/L	V	3.69

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
MANGANESE												
6986	08/20/91	GW01692IT, GW01695IT	MANGANESE	3.30	B	UG/L		6.40	B	UG/L		63.92
6886	05/23/90	G68860523021005, G68860523021045	MANGANESE	58.2		UG/L		52.2		UG/L		10.87
6886	08/01/90	GW00187IT, GW00190IT	MANGANESE	186.00		UG/L		187.00		UG/L		0.54
6886	05/14/91	GW01286IT, GW01289IT	MANGANESE	339.00		UG/L	V	381.00		UG/L	V	11.67
6886	11/25/91	GW02058IT, GW02060IT	MANGANESE	312.00		UG/L		407.00		UG/L		26.43
6886	02/26/92	GW02381IT, GW02383IT	MANGANESE	60.10	E	UG/L	JA	143.00	E	UG/L	JA	81.63
6886	05/15/92	GW02825IT, GW02827IT	MANGANESE	411.00		UG/L	V	423.00		UG/L	V	2.88
			Number achieving RPD criteria* per number of duplicate pairs: 5/7					Percent achieving criteria*: 71.429				
MERCURY												
6986	08/20/91	GW01692IT, GW01695IT	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	MERCURY	0.2	U	UG/L		0.2	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
MOLYBDENUM												
6986	08/20/91	GW01692IT, GW01695IT	MOLYBDENUM	3.00	U	UG/L		3.20	B	UG/L		6.45
6886	05/23/90	G68860523021005, G68860523021045	MOLYBDENUM	17.4	U	UG/L		17.4	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	MOLYBDENUM	7.10	B	UG/L		5.30	B	UG/L		29.03
6886	05/14/91	GW01286IT, GW01289IT	MOLYBDENUM	5.50	B	UG/L	JA	4.60	B	UG/L	JA	17.82
6886	11/25/91	GW02058IT, GW02060IT	MOLYBDENUM	4.70	B	UG/L		4.70	B	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	MOLYBDENUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	MOLYBDENUM	3.00	U	UG/L	V	3.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
NICKEL												
6986	08/20/91	GW01692IT, GW01695IT	NICKEL	3.00	U	UG/L		3.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	NICKEL	5.5	U	UG/L		5.5	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	NICKEL	9.00	B	UG/L		8.40	B	UG/L		6.90
6886	05/14/91	GW01286IT, GW01289IT	NICKEL	5.60	B	UG/L	JA	4.30	B	UG/L	JA	26.26
6886	11/25/91	GW02058IT, GW02060IT	NICKEL	17.00	U	UG/L		17.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	NICKEL	2.50	B	UG/L	V	3.70	B	UG/L	V	38.71
6886	05/15/92	GW02825IT, GW02827IT	NICKEL	9.00	B	UG/L	JA	8.50	B	UG/L	JA	5.71
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
POTASSIUM												
6986	08/20/91	GW01692IT, GW01695IT	POTASSIUM	689.00	B	UG/L		662.00	B	UG/L		4.00
6886	05/23/90	G68860523021005, G68860523021045	POTASSIUM	1420	B	UG/L		1360	B	UG/L		4.32
6886	08/01/90	GW00187IT, GW00190IT	POTASSIUM	1100.00	BE	UG/L		1140.00	BE	UG/L		3.57
6886	05/14/91	GW01286IT, GW01289IT	POTASSIUM	1220.00	B	UG/L	V	1230.00	B	UG/L	V	0.82
6886	11/25/91	GW02058IT, GW02060IT	POTASSIUM	902.00	BE	UG/L		922.00	BE	UG/L		2.19

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	02/26/92	GW02381IT, GW02383IT	POTASSIUM	783.00	B	UG/L	V	775.00	B	UG/L	V	1.03
6886	05/15/92	GW02825IT, GW02827IT	POTASSIUM	1580.00	B	UG/L	V	1400.00	B	UG/L	V	12.08
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
SILICON												
6886	05/23/90	G68860523021005, G68860523021045	SILICON	8070		UG/L		7950		UG/L		1.50
6886	05/15/92	GW02825IT, GW02827IT	SILICON	8120.00		UG/L	V	7870.00		UG/L	V	3.13
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
SILVER												
6986	08/20/91	GW01692IT, GW01695IT	SILVER	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	SILVER	4.4	U	UG/L		4.4	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	SILVER	6.30	B	UG/L		6.30	B	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	SILVER	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	SILVER	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	SILVER	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	SILVER	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
SODIUM												
6986	08/20/91	GW01692IT, GW01695IT	SODIUM	118000.00		UG/L		115000.00		UG/L		2.58
6886	05/23/90	G68860523021005, G68860523021045	SODIUM	22300		UG/L		21900		UG/L		1.81
6886	08/01/90	GW00187IT, GW00190IT	SODIUM	17800.00		UG/L		18200.00		UG/L		2.22
6886	05/14/91	GW01286IT, GW01289IT	SODIUM	22000.00		UG/L	V	24100.00		UG/L	V	9.11
6886	11/25/91	GW02058IT, GW02060IT	SODIUM	24900.00		UG/L		25900.00		UG/L		3.94
6886	02/26/92	GW02381IT, GW02383IT	SODIUM	25100.00		UG/L	V	24600.00		UG/L	V	2.01
6886	05/15/92	GW02825IT, GW02827IT	SODIUM	24400.00		UG/L	V	23700.00		UG/L	V	2.91
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
STRONTIUM												
6986	08/20/91	GW01692IT, GW01695IT	STRONTIUM	923.00		UG/L		905.00		UG/L		1.97
6886	05/23/90	G68860523021005, G68860523021045	STRONTIUM	229	B	UG/L		227	B	UG/L		0.88
6886	08/01/90	GW00187IT, GW00190IT	STRONTIUM	211.00	E	UG/L		212.00	E	UG/L		0.47
6886	05/14/91	GW01286IT, GW01289IT	STRONTIUM	233.00		UG/L	V	257.00		UG/L	V	9.80
6886	11/25/91	GW02058IT, GW02060IT	STRONTIUM	237.00		UG/L		244.00		UG/L		2.91
6886	02/26/92	GW02381IT, GW02383IT	STRONTIUM	240.00	E	UG/L	JA	236.00	E	UG/L	JA	1.68
6886	05/15/92	GW02825IT, GW02827IT	STRONTIUM	235.00		UG/L	V	228.00		UG/L	V	3.02
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
THALLIUM												
6986	08/20/91	GW01692IT, GW01695IT	THALLIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	THALLIUM	1.1	U	UG/L		1.1	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	THALLIUM	3.00	UWN	UG/L		3.00	UWN	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	THALLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	THALLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	THALLIUM	1.00	UW	UG/L	V	1.00	UW	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	THALLIUM	1.00	U	UG/L		1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
TIN												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	TIN	14.00	U	UG/L		14.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	TIN	23.2	U	UG/L		23.2	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	TIN	25.90	B	UG/L		36.10	B	UG/L		32.90
6886	05/14/91	GW01286IT, GW01289IT	TIN	13.20	B	UG/L	JA	13.00	B	UG/L	JA	1.53
6886	11/25/91	GW02058IT, GW02060IT	TIN	17.00	U	UG/L		17.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	TIN	10.00	U	UG/L	V	10.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	TIN	23.00	U	UG/L	V	23.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
ANTIMONY												
6986	08/20/91	GW01692IT, GW01695IT	ANTIMONY	8.00	U	UG/L		8.70	B	UG/L		8.38
6886	05/23/90	G68860523021005, G68860523021045	ANTIMONY	17.6	U	UG/L		17.6	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	ANTIMONY	10.00	U	UG/L		10.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	ANTIMONY	35.10	B	UG/L	JA	31.60	B	UG/L	JA	10.49
6886	11/25/91	GW02058IT, GW02060IT	ANTIMONY	51.00	B	UG/L		46.90	B	UG/L		8.38
6886	02/26/92	GW02381IT, GW02383IT	ANTIMONY	8.00	U	UG/L	V	13.20	B	UG/L	V	49.06
6886	05/15/92	GW02825IT, GW02827IT	ANTIMONY	18.00	U	UG/L	V	18.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
ARSENIC												
6986	08/20/91	GW01692IT, GW01695IT	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	ARSENIC	1.6	U	UG/L		1.6	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	ARSENIC	2.00	BW	UG/L		1.00	BW	UG/L		66.67
6886	05/14/91	GW01286IT, GW01289IT	ARSENIC	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	ARSENIC	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	ARSENIC	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
BARIUM												
6986	08/20/91	GW01692IT, GW01695IT	BARIUM	97.00	BE	UG/L		96.50	BE	UG/L		0.52
6886	05/23/90	G68860523021005, G68860523021045	BARIUM	85.4	B	UG/L		83.4	B	UG/L		2.37
6886	08/01/90	GW00187IT, GW00190IT	BARIUM	88.80	BE	UG/L		92.00	BE	UG/L		3.54
6886	05/14/91	GW01286IT, GW01289IT	BARIUM	98.70	B	UG/L	V	107.00	B	UG/L	V	8.07
6886	11/25/91	GW02058IT, GW02060IT	BARIUM	108.00	B	UG/L		111.00	B	UG/L		2.74
6886	02/26/92	GW02381IT, GW02383IT	BARIUM	125.00	BE	UG/L	JA	121.00	BE	UG/L	JA	3.25
6886	05/15/92	GW02825IT, GW02827IT	BARIUM	116.00	B	UG/L	V	116.00	B	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
BERYLLIUM												
6986	08/20/91	GW01692IT, GW01695IT	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	BERYLLIUM	2.6	U	UG/L		2.6	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	BERYLLIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				

CADMIUM

Note: [redacted]here both Field Sample and Field Duplicate results are non-detects, [redacted] defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
[redacted]ere one result is non-detect and one is detect, detection limit f[redacted]n-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	CADMIUM	1.00	U	UG/L		1.00	B	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	CADMIUM	4.1	B	UG/L		3.6	U	UG/L		12.99
6886	08/01/90	GW00187IT, GW00190IT	CADMIUM	2.00	U	UG/L		2.10	B	UG/L		4.88
6886	05/14/91	GW01286IT, GW01289IT	CADMIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	CADMIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	CADMIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
CESIUM												
6986	08/20/91	GW01692IT, GW01695IT	CESIUM	70.00	B	UG/L		130.00	B	UG/L		60.00
6886	05/23/90	G68860523021005, G68860523021045	CESIUM	1000	U	UG/L		1000	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CESIUM	147.00	U	UG/L		147.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	CESIUM	110	U	UG/L	V	110	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	CESIUM	51.00	U	UG/L		51.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	CESIUM	32.00	U	UG/L	V	32.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	CESIUM	23.00	U	UG/L	JA	23.00	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
CHROMIUM												
6986	08/20/91	GW01692IT, GW01695IT	CHROMIUM	4.40	B	UG/L		9.90	B	UG/L		76.92
6886	05/23/90	G68860523021005, G68860523021045	CHROMIUM	4.9	U	UG/L		4.9	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHROMIUM	13.00		UG/L		12.80		UG/L		1.55
6886	05/14/91	GW01286IT, GW01289IT	CHROMIUM	3.50	B	UG/L	JA	3.00	U	UG/L	JA	15.38
6886	11/25/91	GW02058IT, GW02060IT	CHROMIUM	6.40	B	UG/L		6.00	U	UG/L		6.45
6886	02/26/92	GW02381IT, GW02383IT	CHROMIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	CHROMIUM	5.00	U	UG/L	V	5.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
COBALT												
6986	08/20/91	GW01692IT, GW01695IT	COBALT	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	05/23/90	G68860523021005, G68860523021045	COBALT	4.4	U	UG/L		4.4	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	COBALT	6.30	B	UG/L		5.60	B	UG/L		11.76
6886	05/14/91	GW01286IT, GW01289IT	COBALT	3.30	B	UG/L	V	3.00	U	UG/L	V	9.52
6886	11/25/91	GW02058IT, GW02060IT	COBALT	3.80	B	UG/L		3.00	U	UG/L		23.53
6886	02/26/92	GW02381IT, GW02383IT	COBALT	3.00	U	UG/L	V	3.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	COBALT	4.00	U	UG/L	V	4.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
COPPER												
6986	08/20/91	GW01692IT, GW01695IT	COPPER	3.00	U	UG/L		3.40	B	UG/L		12.50
6886	05/23/90	G68860523021005, G68860523021045	COPPER	6.3	B	UG/L		4.5	B	UG/L		33.33
6886	08/01/90	GW00187IT, GW00190IT	COPPER	3.00	U	UG/L		3.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	COPPER	11.00	U	UG/L	V	11.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	COPPER	3.10	B	UG/L		3.00	U	UG/L		3.28
6886	02/26/92	GW02381IT, GW02383IT	COPPER	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	COPPER	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				
VANADIUM												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6986	08/20/91	GW01692IT, GW01695IT	VANADIUM	6.40	B	UG/L		8.00	B	UG/L		22.22
6886	05/23/90	G68860523021005, G68860523021045	VANADIUM	2.4	B	UG/L		2.3	B	UG/L		4.26
6886	08/01/90	GW00187IT, GW00190IT	VANADIUM	7.00	B	UG/L		7.20	B	UG/L		2.82
6886	05/14/91	GW01286IT, GW01289IT	VANADIUM	2.00	U	UG/L	V	2.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	VANADIUM	2.40	B	UG/L		2.50	B	UG/L		4.08
6886	05/15/92	GW02825IT, GW02827IT	VANADIUM	3.00	B	UG/L	JA	1.10	B	UG/L	JA	92.68
			Number achieving RPD criteria* per number of duplicate pairs: 5/6					Percent achieving criteria*: 83.333				
ZINC												
6986	08/20/91	GW01692IT, GW01695IT	ZINC	14.40	B	UG/L		16.90	B	UG/L		15.97
6886	05/23/90	G68860523021005, G68860523021045	ZINC	18.8	B	UG/L		9	U	UG/L		70.50
6886	08/01/90	GW00187IT, GW00190IT	ZINC	5.00	B	UG/L		2.70	B	UG/L		59.74
6886	05/14/91	GW01286IT, GW01289IT	ZINC	16.80	B	UG/L	JA	55.30		UG/L	JA	106.80
6886	11/25/91	GW02058IT, GW02060IT	ZINC	14.90	BE	UG/L		14.20	BE	UG/L		4.81
6886	02/26/92	GW02381IT, GW02383IT	ZINC	9.60	B	UG/L	JA	12.30	B	UG/L	JA	24.66
6886	05/15/92	GW02825IT, GW02827IT	ZINC	21.70		UG/L	JA	17.80	B	UG/L	JA	19.75
			Number achieving RPD criteria* per number of duplicate pairs: 4/7					Percent achieving criteria*: 57.143				
CALCIUM												
6986	08/20/91	GW01692IT, GW01695IT	CALCIUM	115000.00		UG/L		114000.00		UG/L		0.87
6886	05/23/90	G68860523021005, G68860523021045	CALCIUM	37600		UG/L		37400		UG/L		0.53
6886	08/01/90	GW00187IT, GW00190IT	CALCIUM	36200.00	E	UG/L		36400.00	E	UG/L		0.55
6886	05/14/91	GW01286IT, GW01289IT	CALCIUM	39000.00		UG/L	V	43400.00		UG/L	V	10.68
6886	11/25/91	GW02058IT, GW02060IT	CALCIUM	40100.00		UG/L		41200.00		UG/L		2.71
6886	02/26/92	GW02381IT, GW02383IT	CALCIUM	43300.00		UG/L	V	43100.00		UG/L	V	0.46
6886	05/15/92	GW02825IT, GW02827IT	CALCIUM	39400.00		UG/L	V	37800.00		UG/L	V	4.15
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				
SELENIUM												
6986	08/20/91	GW01692IT, GW01695IT	SELENIUM	105.00		UG/L		110.00		UG/L		4.65
6886	05/23/90	G68860523021005, G68860523021045	SELENIUM	1.2	U	UG/L		1.2	U	UG/L		0.00
6886	08/01/90	GW00187IT, GW00190IT	SELENIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	05/14/91	GW01286IT, GW01289IT	SELENIUM	1.00	U	UG/L	JA	1.00	U	UG/L	V	0.00
6886	11/25/91	GW02058IT, GW02060IT	SELENIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
6886	02/26/92	GW02381IT, GW02383IT	SELENIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
6886	05/15/92	GW02825IT, GW02827IT	SELENIUM	1.00	U	UG/L	V	1.00	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
ALUMINUM												
SW029	09/12/90	SW00311WC, SW80042WC	ALUMINUM	41.80	B	UG/L		44.30	B	UG/L		5.81
SW029	04/02/92	SW01875WC, SW80190WC	ALUMINUM	38.6		UG/L	JA	29.3		UG/L	JA	27.39
SW031	05/15/90	SW031W051590A, SW031W051590D	ALUMINUM	200	U	UG/L		200	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	ALUMINUM	36.8	U	UG/L	V	36.8	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ALUMINUM	30.0	U	UG/L		25.8	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ALUMINUM	29.5		UG/L	V	30.1		UG/L	V	2.01
SW034	12/04/90	SW00610WC, SW80073WC	ALUMINUM	34.7	B	UG/L	V	20.0	U	UG/L	V	53.75
SW034	04/04/91	SW01020WC, SW80107WC	ALUMINUM	17.7	U	UG/L		17.7	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ALUMINUM	41.80	B	UG/L		48.50	B	UG/L		14.84
SW035	10/03/90	SW00410WC, SW80051WC	ALUMINUM	54.10	B	UG/L		34.60	B	UG/L		43.97
SW035	04/08/91	SW01025WC, SW80109WC	ALUMINUM	108	U	UG/L		108	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ALUMINUM	108	U	UG/L	V	108	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	ALUMINUM	60.00	B	UG/L		61.00	B	UG/L		1.65
SW039	06/07/90	SW00058WC, SW00059WC	ALUMINUM	200	U	UG/L		200	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ALUMINUM	43.10	B	UG/L		44.90	B	UG/L		4.09
SW068	03/19/91	SW00929WC, SW80095WC	ALUMINUM	17.7	U	UG/L	V	17.7	U	UG/L	JA	0.00
SW069	08/20/90	SW00248WC, SW80035WC	ALUMINUM	40.00	B	UG/L		24.50	B	UG/L		48.06
			Number achieving RPD criteria* per number of duplicate pairs: 14/17					Percent achieving criteria*: 82.353				
IRON												
SW029	09/12/90	SW00311WC, SW80042WC	IRON	21.70	B	UG/L		27.60	B	UG/L		23.94
SW029	04/02/92	SW01875WC, SW80190WC	IRON	94.1		UG/L	JA	91.3		UG/L	JA	3.02
SW031	05/15/90	SW031W051590A, SW031W051590D	IRON	100	U	UG/L		100	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	IRON	95.9		UG/L	JA	75.2		UG/L	JA	24.20
SW034	01/15/90	SW03490001, SW03490001D	IRON	42.0		UG/L		44.8	UJ	UG/L	A	6.45
SW034	11/07/90	SW00506WC, SW80065WC	IRON	9.4		UG/L	JA	6.7		UG/L	JA	33.54
SW034	12/04/90	SW00610WC, SW80073WC	IRON	14.8	B	UG/L	JA	3.0	U	UG/L	V	132.58
SW034	04/04/91	SW01020WC, SW80107WC	IRON	22.5		UG/L		29.8		UG/L		27.92
SW035	07/19/90	SW00141WC, SW80016WC	IRON	33.90	B	UG/L		25.30	B	UG/L		29.05
SW035	10/03/90	SW00410WC, SW80051WC	IRON	38.00	B	UG/L		15.80	B	UG/L		82.53
SW035	04/08/91	SW01025WC, SW80109WC	IRON	49.1		UG/L		40.9		UG/L		18.22
SW035	05/14/91	SW01132WC, SW80123WC	IRON	27.4		UG/L	JA	24.8		UG/L	JA	9.96
SW038	12/11/90	SW00624WC, SW80081WC	IRON	14.00	U	UG/L		14.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	IRON	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	IRON	19.20	B	UG/L		39.20	B	UG/L		68.49
SW068	03/19/91	SW00929WC, SW80095WC	IRON	34.2		UG/L	JA	49.9		UG/L	JA	37.34
SW069	08/20/90	SW00248WC, SW80035WC	IRON	13.00	U	UG/L		13.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 12/17					Percent achieving criteria*: 70.588				
LEAD												
SW029	09/12/90	SW00311WC, SW80042WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	LEAD	1.2	U	UG/L	V	1.2	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	LEAD	3.0	U	UG/L		3.0	U	UG/L		0.00
SW034	01/15/90	SW03490001, SW03490001D	LEAD	4.1		UG/L		3.9	UJ	UG/L	A	5.00
SW034	11/07/90	SW00506WC, SW80065WC	LEAD	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	LEAD	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	LEAD	1.4	U	UG/L		13.2		UG/L		161.64

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	07/19/90	SW00141WC, SW80016WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	LEAD	2.1		UG/L		1.8		UG/L		15.38
SW035	05/14/91	SW01132WC, SW80123WC	LEAD	1.0	U	UG/L	JA	1.0	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	LEAD	3.0	U	UG/L		3.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	LEAD	2.2		UG/L	JA	1.6		UG/L	V	31.58
SW069	08/20/90	SW00248WC, SW80035WC	LEAD	1.00	U	UG/L		1.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/16					Percent achieving criteria*: 87.500				
LITHIUM												
SW029	09/12/90	SW00311WC, SW80042WC	LITHIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	LITHIUM	2.6		UG/L	JA	2.1		UG/L	JA	21.28
SW031	05/15/90	SW031W051590A, SW031W051590D	LITHIUM	100	U	UG/L		100	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	LITHIUM	4.4		UG/L	V	4.7		UG/L	V	6.59
SW034	01/15/90	SW03490001, SW03490001D	LITHIUM	9.0		UG/L		9.0	J	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	LITHIUM	12.5		UG/L	JA	10.1		UG/L	JA	21.24
SW034	12/04/90	SW00610WC, SW80073WC	LITHIUM	10.0	U	UG/L	V	10.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	LITHIUM	6.4		UG/L		6.2		UG/L		3.17
SW035	07/19/90	SW00141WC, SW80016WC	LITHIUM	7.30	B	UG/L		5.70	B	UG/L		24.62
SW035	10/03/90	SW00410WC, SW80051WC	LITHIUM	5.20	B	UG/L		3.50	B	UG/L		39.08
SW035	04/08/91	SW01025WC, SW80109WC	LITHIUM	3.2		UG/L		3.2		UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	LITHIUM	7.00	B	UG/L		6.70	B	UG/L		4.38
SW039	06/07/90	SW00058WC, SW00059WC	LITHIUM	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	LITHIUM	6.20	B	UG/L		7.80	B	UG/L		22.86
SW068	03/19/91	SW00929WC, SW80095WC	LITHIUM	6.9		UG/L	V	6.6		UG/L	V	4.44
SW069	08/20/90	SW00248WC, SW80035WC	LITHIUM	8.00	B	UG/L		9.60	B	UG/L		18.18
			Number achieving RPD criteria* per number of duplicate pairs: 15/16					Percent achieving criteria*: 93.750				
MAGNESIUM												
SW029	09/12/90	SW00311WC, SW80042WC	MAGNESIUM	8000.00		UG/L		7950.00		UG/L		0.63
SW029	04/02/92	SW01875WC, SW80190WC	MAGNESIUM	6710		UG/L	V	6940		UG/L	V	3.37
SW031	05/15/90	SW031W051590A, SW031W051590D	MAGNESIUM	15700		UG/L		15700		UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	MAGNESIUM	6380		UG/L	V	6490		UG/L	V	1.71
SW034	01/15/90	SW03490001, SW03490001D	MAGNESIUM	6570.0		UG/L		6720		UG/L	V	2.26
SW034	11/07/90	SW00506WC, SW80065WC	MAGNESIUM	8110		UG/L	V	8090		UG/L	V	0.25
SW034	12/04/90	SW00610WC, SW80073WC	MAGNESIUM	7360		UG/L	V	37.9	B	UG/L	V	197.95
SW034	04/04/91	SW01020WC, SW80107WC	MAGNESIUM	6490		UG/L		6260		UG/L		3.61
SW035	07/19/90	SW00141WC, SW80016WC	MAGNESIUM	11900.00		UG/L		12200.00		UG/L		2.49
SW035	10/03/90	SW00410WC, SW80051WC	MAGNESIUM	8960.00		UG/L		8890.00		UG/L		0.78
SW035	04/08/91	SW01025WC, SW80109WC	MAGNESIUM	4020		UG/L		4020		UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MAGNESIUM	16100		UG/L	V	15800		UG/L	V	1.88
SW038	12/11/90	SW00624WC, SW80081WC	MAGNESIUM	20400.00		UG/L		20000.00		UG/L		1.98
SW039	06/07/90	SW00058WC, SW00059WC	MAGNESIUM	5670		UG/L		5570		UG/L		1.78
SW068	12/10/90	SW00621WC, SW80079WC	MAGNESIUM	16700.00		UG/L		16600.00		UG/L		0.60
SW068	03/19/91	SW00929WC, SW80095WC	MAGNESIUM	11500		UG/L	V	11200		UG/L	V	2.64
SW069	08/20/90	SW00248WC, SW80035WC	MAGNESIUM	15900.00		UG/L		15900.00		UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
				Number achieving RPD criteria* per number of duplicate pairs: 16/17				Percent achieving criteria*: 94.118				
MANGANESE												
SW029	09/12/90	SW00311WC, SW80042WC	MANGANESE	24.40		UG/L		24.90		UG/L		2.03
SW029	04/02/92	SW01875WC, SW80190WC	MANGANESE	25.5		UG/L	V	27.9		UG/L	V	8.99
SW031	05/15/90	SW031W051590A, SW031W051590D	MANGANESE	15.0	U	UG/L		15.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	MANGANESE	26.8		UG/L	V	27.3		UG/L	V	1.85
SW034	01/15/90	SW03490001, SW03490001D	MANGANESE	10.0	U	UG/L		3.4		UG/L	V	98.51
SW034	11/07/90	SW00506WC, SW80065WC	MANGANESE	9.6		UG/L	JA	9.6		UG/L	JA	0.00
SW034	12/04/90	SW00610WC, SW80073WC	MANGANESE	7.8	B	UG/L	JA	1.1	B	UG/L	JA	150.56
SW034	04/04/91	SW01020WC, SW80107WC	MANGANESE	2.9		UG/L		2.8		UG/L		3.51
SW035	07/19/90	SW00141WC, SW80016WC	MANGANESE	182.00		UG/L		184.00		UG/L		1.09
SW035	10/03/90	SW00410WC, SW80051WC	MANGANESE	111.00		UG/L		110.00		UG/L		0.90
SW035	04/08/91	SW01025WC, SW80109WC	MANGANESE	47.5		UG/L		47.5		UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MANGANESE	31.1		UG/L	JA	30.0		UG/L	JA	3.60
SW038	12/11/90	SW00624WC, SW80081WC	MANGANESE	11.70	B	UG/L		11.70	B	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	MANGANESE	15.0	U	UG/L		15.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	MANGANESE	3.90	B	UG/L		4.00	B	UG/L		2.53
SW068	03/19/91	SW00929WC, SW80095WC	MANGANESE	17.0		UG/L	V	16.9		UG/L	V	0.59
SW069	08/20/90	SW00248WC, SW80035WC	MANGANESE	15.70		UG/L		13.30	B	UG/L		16.55
				Number achieving RPD criteria* per number of duplicate pairs: 15/17				Percent achieving criteria*: 88.235				
MERCURY												
SW029	09/12/90	SW00311WC, SW80042WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	MERCURY	0.56		UG/L		0.20	U	UG/L		94.74
SW033	08/07/91	SW01438WC, SW80145WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	MERCURY	0.2	U	UG/L		0.20	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MERCURY	0.20	U	UG/L	JA	0.20	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	MERCURY	0.20	UN	UG/L		0.20	UN	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	MERCURY	0.20	U	UG/L	V	0.20	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	MERCURY	0.20	U	UG/L		0.20	U	UG/L		0.00
				Number achieving RPD criteria* per number of duplicate pairs: 14/15				Percent achieving criteria*: 93.333				
MOLYBDENUM												
SW029	09/12/90	SW00311WC, SW80042WC	MOLYBDENUM	6.30	B	UG/L		6.10	B	UG/L		3.23
SW029	04/02/92	SW01875WC, SW80190WC	MOLYBDENUM	3.5	U	UG/L	V	3.5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	MOLYBDENUM	100	U	UG/L		100	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	MOLYBDENUM	10.0	U	UG/L	V	10.0	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	MOLYBDENUM	500.0	U	UG/L		20.5	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	MOLYBDENUM	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	MOLYBDENUM	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	MOLYBDENUM	10.9	U	UG/L		10.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	MOLYBDENUM	5.50	B	UG/L		3.60	B	UG/L		41.76
SW035	10/03/90	SW00410WC, SW80051WC	MOLYBDENUM	3.20	B	UG/L		3.00	B	UG/L		6.45
SW035	04/08/91	SW01025WC, SW80109WC	MOLYBDENUM	5.7	U	UG/L		5.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	MOLYBDENUM	8.8		UG/L	V	5.7	U	UG/L	V	42.76
SW038	12/11/90	SW00624WC, SW80081WC	MOLYBDENUM	9.00	B	UG/L		9.80	B	UG/L		8.51
SW039	06/07/90	SW00058WC, SW00059WC	MOLYBDENUM	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	MOLYBDENUM	4.00	B	UG/L		4.00	B	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	MOLYBDENUM	10.9	U	UG/L	V	10.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	MOLYBDENUM	7.40	B	UG/L		2.00	U	UG/L		114.89
			Number achieving RPD criteria* per number of duplicate pairs: 14/17					Percent achieving criteria*: 82.353				
NICKEL												
SW029	09/12/90	SW00311WC, SW80042WC	NICKEL	6.60	B	UG/L		7.20	B	UG/L		8.70
SW029	04/02/92	SW01875WC, SW80190WC	NICKEL	11.2	U	UG/L	V	11.2	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	NICKEL	40.0	U	UG/L		40.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	NICKEL	10.7	U	UG/L	V	10.7	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	NICKEL	20.0	U	UG/L		3.8	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	NICKEL	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	NICKEL	9.0	U	UG/L	V	9.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	NICKEL	3.9	U	UG/L		3.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	NICKEL	14.7	U	UG/L		14.7	U	UG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	NICKEL	6.70	B	UG/L		7.30	B	UG/L		8.57
SW039	06/07/90	SW00058WC, SW00059WC	NICKEL	40.0	U	UG/L		40.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	NICKEL	4.00	U	UG/L		4.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	NICKEL	3.9	U	UG/L	V	3.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	NICKEL	4.10	B	UG/L		4.00	U	UG/L		2.47
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
POTASSIUM												
SW029	09/12/90	SW00311WC, SW80042WC	POTASSIUM	1980.00	B	UG/L		1660.00	B	UG/L		17.58
SW029	04/02/92	SW01875WC, SW80190WC	POTASSIUM	1750		UG/L	JA	1430		UG/L	JA	20.13
SW031	05/15/90	SW031W051590A, SW031W051590D	POTASSIUM	5000	U	UG/L		5000	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	POTASSIUM	1550		UG/L	V	1440		UG/L	V	7.36
SW034	01/15/90	SW03490001, SW03490001D	POTASSIUM	1170.0		UG/L		1160		UG/L	V	0.86
SW034	11/07/90	SW00506WC, SW80065WC	POTASSIUM	2420		UG/L	V	2600		UG/L	V	7.17
SW034	12/04/90	SW00610WC, SW80073WC	POTASSIUM	1530	B	UG/L	V	873	B	UG/L	V	54.68
SW034	04/04/91	SW01020WC, SW80107WC	POTASSIUM	1180		UG/L		1140		UG/L		3.45
SW035	07/19/90	SW00141WC, SW80016WC	POTASSIUM	2200.00	B	UG/L		2230.00	B	UG/L		1.35
SW035	10/03/90	SW00410WC, SW80051WC	POTASSIUM	1640.00	B	UG/L		1600.00	B	UG/L		2.47
SW035	04/08/91	SW01025WC, SW80109WC	POTASSIUM	2050	U	UG/L		2050	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	POTASSIUM	3260		UG/L	V	4700		UG/L	V	36.18
SW038	12/11/90	SW00624WC, SW80081WC	POTASSIUM	590.00	B	UG/L		540.00	B	UG/L		8.85
SW039	06/07/90	SW00058WC, SW00059WC	POTASSIUM	5000	U	UG/L		5000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	POTASSIUM	2680.00	B	UG/L		2660.00	B	UG/L		0.75
SW068	03/19/91	SW00929WC, SW80095WC	POTASSIUM	2910		UG/L	V	2930		UG/L	V	0.68

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW069	08/20/90	SW00248WC, SW80035WC	POTASSIUM	1880.00	B	UG/L		1960.00	B	UG/L		4.17
			Number achieving RPD criteria* per number of duplicate pairs: 15/17					Percent achieving criteria*: 88.235				
SILICON												
SW029	04/02/92	SW01875WC, SW80190WC	SILICON	5640		UG/L	V	5670		UG/L	V	0.53
SW033	08/07/91	SW01438WC, SW80145WC	SILICON	5240		UG/L	JA	5480		UG/L	JA	4.48
SW034	11/07/90	SW00506WC, SW80065WC	SILICON	11800		UG/L	JA	11400		UG/L	JA	3.45
SW034	04/04/91	SW01020WC, SW80107WC	SILICON	8780		UG/L		8640		UG/L		1.61
SW034	06/13/91	SW01230WC, SW80131WC	SILICON	10900		UG/L		11100		UG/L		1.82
SW034	07/10/91	SW01333WC, SW80139WC	SILICON	11100		UG/L	V	10900		UG/L	V	1.82
SW035	04/08/91	SW01025WC, SW80109WC	SILICON	1030		UG/L		1020		UG/L		0.98
SW035	05/14/91	SW01132WC, SW80123WC	SILICON	6550		UG/L	V	6530		UG/L	V	0.31
SW068	03/19/91	SW00929WC, SW80095WC	SILICON	2470		UG/L	V	2390		UG/L	V	3.29
			Number achieving RPD criteria* per number of duplicate pairs: 9/9					Percent achieving criteria*: 100.000				
SILVER												
SW029	09/12/90	SW00311WC, SW80042WC	SILVER	4.70	B	UG/L		5.70	B	UG/L		19.23
SW029	04/02/92	SW01875WC, SW80190WC	SILVER	2.1	U	UG/L	V	2.1	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	SILVER	10.0	U	UG/L		10.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	SILVER	6.8	U	UG/L	V	6.8	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	SILVER	30.0	U	UG/L		2.8	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	SILVER	6.3		UG/L	V	6.8		UG/L	V	7.63
SW034	12/04/90	SW00610WC, SW80073WC	SILVER	5.5	B	UG/L	V	3.4	B	UG/L	V	47.19
SW034	04/04/91	SW01020WC, SW80107WC	SILVER	3.8	U	UG/L		3.8	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	SILVER	2.00	U	UG/L		2.10	B	UG/L		4.88
SW035	10/03/90	SW00410WC, SW80051WC	SILVER	5.90	B	UG/L		5.80	B	UG/L		1.71
SW035	04/08/91	SW01025WC, SW80109WC	SILVER	5.0	U	UG/L		5.0	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	SILVER	5.0	U	UG/L	JA	5.0	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	SILVER	4.40	B	UG/L		5.10	B	UG/L		14.74
SW039	06/07/90	SW00058WC, SW00059WC	SILVER	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	SILVER	3.00	U	UG/L		3.50	B	UG/L		15.38
SW068	03/19/91	SW00929WC, SW80095WC	SILVER	3.8	U	UG/L	V	3.8	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	SILVER	2.30	B	UG/L		2.00	U	UG/L		13.95
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
SODIUM												
SW029	09/12/90	SW00311WC, SW80042WC	SODIUM	18900.00		UG/L		17000.00		UG/L		10.58
SW029	04/02/92	SW01875WC, SW80190WC	SODIUM	18300		UG/L	V	18300		UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	SODIUM	29100		UG/L		29000		UG/L		0.34
SW033	08/07/91	SW01438WC, SW80145WC	SODIUM	16700		UG/L	V	16500		UG/L	V	1.20
SW034	01/15/90	SW03490001, SW03490001D	SODIUM	12400.0		UG/L		12800		UG/L	V	3.17
SW034	11/07/90	SW00506WC, SW80065WC	SODIUM	15400		UG/L	V	15000		UG/L	V	2.63
SW034	12/04/90	SW00610WC, SW80073WC	SODIUM	13600		UG/L	V	229	B	UG/L	V	193.38
SW034	04/04/91	SW01020WC, SW80107WC	SODIUM	12900		UG/L		12500		UG/L		3.15
SW035	07/19/90	SW00141WC, SW80016WC	SODIUM	17900.00		UG/L		18000.00		UG/L		0.56
SW035	10/03/90	SW00410WC, SW80051WC	SODIUM	12600.00		UG/L		13700.00		UG/L		8.37
SW035	04/08/91	SW01025WC, SW80109WC	SODIUM	12800		UG/L		12800		UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	SODIUM	49200		UG/L	V	47200		UG/L	V	4.15

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW038	12/11/90	SW00624WC, SW80081WC	SODIUM	16800.00		UG/L		16200.00		UG/L		3.64
SW039	06/07/90	SW00058WC, SW00059WC	SODIUM	14000		UG/L		13900		UG/L		0.72
SW068	12/10/90	SW00621WC, SW80079WC	SODIUM	34500.00		UG/L		33800.00		UG/L		2.05
SW068	03/19/91	SW00929WC, SW80095WC	SODIUM	29400		UG/L	V	29000		UG/L	V	1.37
SW069	08/20/90	SW00248WC, SW80035WC	SODIUM	27600.00		UG/L		27400.00		UG/L		0.73
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
STRONTIUM												
SW029	09/12/90	SW00311WC, SW80042WC	STRONTIUM	209.00		UG/L		206.00		UG/L		1.45
SW029	04/02/92	SW01875WC, SW80190WC	STRONTIUM	178		UG/L	V	180		UG/L	V	1.12
SW031	05/15/90	SW031W051590A, SW031W051590D	STRONTIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	STRONTIUM	162		UG/L	V	162		UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	STRONTIUM	199.0		UG/L		204	J	UG/L	A	2.48
SW034	11/07/90	SW00506WC, SW80065WC	STRONTIUM	217		UG/L	V	218		UG/L	V	0.46
SW034	12/04/90	SW00610WC, SW80073WC	STRONTIUM	194	B	UG/L	V	1.0	U	UG/L	V	197.95
SW034	04/04/91	SW01020WC, SW80107WC	STRONTIUM	197		UG/L		190		UG/L		3.62
SW035	07/19/90	SW00141WC, SW80016WC	STRONTIUM	376.00		UG/L		380.00		UG/L		1.06
SW035	10/03/90	SW00410WC, SW80051WC	STRONTIUM	263.00		UG/L		262.00		UG/L		0.38
SW035	04/08/91	SW01025WC, SW80109WC	STRONTIUM	120		UG/L		122		UG/L		1.65
SW035	05/14/91	SW01132WC, SW80123WC	STRONTIUM	440		UG/L	V	434		UG/L	V	1.37
SW038	12/11/90	SW00624WC, SW80081WC	STRONTIUM	527.00		UG/L		517.00		UG/L		1.92
SW039	06/07/90	SW00058WC, SW00059WC	STRONTIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	STRONTIUM	483.00		UG/L		483.00		UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	STRONTIUM	311		UG/L	V	303		UG/L	V	2.61
SW069	08/20/90	SW00248WC, SW80035WC	STRONTIUM	411.00		UG/L		408.00		UG/L		0.73
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
THALLIUM												
SW029	09/12/90	SW00311WC, SW80042WC	THALLIUM	3.00	U	UG/L		3.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	THALLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	THALLIUM	10.0	U	UG/L		10.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	THALLIUM	1.6	U	UG/L	JA	1.6	U	UG/L	JA	0.00
SW034	01/15/90	SW03490001, SW03490001D	THALLIUM	3.0	U	UG/L		1.1	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	THALLIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	THALLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	THALLIUM	1.4	U	UG/L		1.4	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	THALLIUM	3.00	U	UG/L		3.00	UW	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	THALLIUM	2.00	UWN	UG/L		2.00	UWN	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	THALLIUM	1.4	U	UG/L		1.4	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	THALLIUM	1.4	U	UG/L	JA	1.4	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	THALLIUM	3.00	UWN	UG/L		3.00	UWN	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	THALLIUM	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	THALLIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	THALLIUM	1.4	U	UG/L	JA	1.4	U	UG/L	JA	0.00
SW069	08/20/90	SW00248WC, SW80035WC	THALLIUM	1.00	BWN	UG/L		1.00	UWN	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				
TIN												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	09/12/90	SW00311WC, SW80042WC	TIN	19.20	B	UG/L		23.30	B	UG/L		19.29
SW029	04/02/92	SW01875WC, SW80190WC	TIN	9.4	U	UG/L	V	9.4	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	TIN	100	U	UG/L		100	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	TIN	38.9	U	UG/L	V	38.9	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	TIN	1000.0	U	UG/L		41.0	UJ	UG/L	A	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TIN	30.0	U	UG/L	V	30.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TIN	56.0	B	UG/L	V	30.0	U	UG/L	V	60.47
SW034	04/04/91	SW01020WC, SW80107WC	TIN	24.2	U	UG/L		24.2	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	TIN	14.40	B	UG/L		14.90	B	UG/L		3.41
SW035	10/03/90	SW00410WC, SW80051WC	TIN	15.40	B	UG/L		16.40	B	UG/L		6.29
SW035	04/08/91	SW01025WC, SW80109WC	TIN	14.8	U	UG/L		14.8	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	TIN	14.8	U	UG/L	V	14.8	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	TIN	37.00	B	UG/L		36.60	B	UG/L		1.09
SW039	06/07/90	SW00058WC, SW00059WC	TIN	100	U	UG/L		100	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	TIN	19.30	B	UG/L		16.40	B	UG/L		16.25
SW068	03/19/91	SW00929WC, SW80095WC	TIN	24.2	U	UG/L	V	24.2	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	TIN	11.10	B	UG/L		11.00	U	UG/L		0.90
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
ANTIMONY												
SW029	09/12/90	SW00311WC, SW80042WC	ANTIMONY	29.20	B	UG/L		21.00	B	UG/L		32.67
SW029	04/02/92	SW01875WC, SW80190WC	ANTIMONY	19.8	U	UG/L	V	22.0		UG/L	JA	10.53
SW031	05/15/90	SW031W051590A, SW031W051590D	ANTIMONY	60.0	U	UG/L		60.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	ANTIMONY	42.2	U	UG/L	V	42.2	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ANTIMONY	500.0	U	UG/L		44.6	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ANTIMONY	22.0	U	UG/L	JA	22.0	U	UG/L	JA	0.00
SW034	12/04/90	SW00610WC, SW80073WC	ANTIMONY	22.0	U	UG/L	V	22.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ANTIMONY	33.1		UG/L		18.2	U	UG/L		58.09
SW035	07/19/90	SW00141WC, SW80016WC	ANTIMONY	14.50	B	UG/L		12.30	B	UG/L		16.42
SW035	10/03/90	SW00410WC, SW80051WC	ANTIMONY	7.00	U	UG/L		7.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ANTIMONY	25.6	U	UG/L		25.6	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ANTIMONY	25.6	U	UG/L	JA	25.6	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	ANTIMONY	33.30	B	UG/L		30.30	B	UG/L		9.43
SW039	06/07/90	SW00058WC, SW00059WC	ANTIMONY	60.0	U	UG/L		60.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ANTIMONY	7.00	U	UG/L		11.50	B	UG/L		48.65
SW068	03/19/91	SW00929WC, SW80095WC	ANTIMONY	18.2	U	UG/L	JA	22.8		UG/L	JA	22.44
SW069	08/20/90	SW00248WC, SW80035WC	ANTIMONY	10.00	U	UG/L		10.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 14/17					Percent achieving criteria*: 82.353				
ARSENIC												
SW029	09/12/90	SW00311WC, SW80042WC	ARSENIC	1.00	B	UG/L		1.00	B	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	ARSENIC	1.7	U	UG/L	JA	1.7	U	UG/L	JA	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	ARSENIC	10.0	U	UG/L		10.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	ARSENIC	0.70	U	UG/L	V	0.70	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ARSENIC	2.0	U	UG/L		1.9	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	ARSENIC	1.2		UG/L	V	1.0	B	UG/L	V	18.18
SW034	12/04/90	SW00610WC, SW80073WC	ARSENIC	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ARSENIC	0.90	U	UG/L		0.90	U	UG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW035	07/19/90	SW00141WC, SW80016WC	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	ARSENIC	0.90	U	UG/L		0.90	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	ARSENIC	0.90	U	UG/L	V	0.90	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	ARSENIC	2.00	UW	UG/L		2.00	UW	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	ARSENIC	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ARSENIC	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	ARSENIC	0.90	U	UG/L	JA	0.90	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	ARSENIC	1.00	U	UG/L		1.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				
BARIUM												
SW029	09/12/90	SW00311WC, SW80042WC	BARIUM	83.60	B	UG/L		85.60	B	UG/L		2.36
SW029	04/02/92	SW01875WC, SW80190WC	BARIUM	58.1		UG/L	V	58.9		UG/L	V	1.37
SW031	05/15/90	SW031W051590A, SW031W051590D	BARIUM	200	U	UG/L		200	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BARIUM	60.4		UG/L	V	59.8		UG/L	V	1.00
SW034	01/15/90	SW03490001, SW03490001D	BARIUM	75.8		UG/L		78.5		UG/L	V	3.50
SW034	11/07/90	SW00506WC, SW80065WC	BARIUM	91.4		UG/L	V	95.0		UG/L	V	3.86
SW034	12/04/90	SW00610WC, SW80073WC	BARIUM	94.3	B	UG/L	V	4.7	B	UG/L	JA	181.01
SW034	04/04/91	SW01020WC, SW80107WC	BARIUM	87.2		UG/L		84.1		UG/L		3.62
SW035	07/19/90	SW00141WC, SW80016WC	BARIUM	153.00	BE	UG/L		154.00	BE	UG/L		0.65
SW035	10/03/90	SW00410WC, SW80051WC	BARIUM	113.00	B	UG/L		113.00	B	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BARIUM	55.1		UG/L		52.2		UG/L		5.41
SW035	05/14/91	SW01132WC, SW80123WC	BARIUM	128		UG/L	JA	123		UG/L	JA	3.98
SW038	12/11/90	SW00624WC, SW80081WC	BARIUM	161.00	B	UG/L		159.00	B	UG/L		1.25
SW039	06/07/90	SW00058WC, SW00059WC	BARIUM	200	U	UG/L		200	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BARIUM	138.00	B	UG/L		137.00	B	UG/L		0.73
SW068	03/19/91	SW00929WC, SW80095WC	BARIUM	74.4		UG/L	V	78.8		UG/L	V	5.74
SW069	08/20/90	SW00248WC, SW80035WC	BARIUM	76.60	B	UG/L		73.40	B	UG/L		4.27
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
BERYLLIUM												
SW029	09/12/90	SW00311WC, SW80042WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	BERYLLIUM	0.60	U	UG/L	V	0.60	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	BERYLLIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	BERYLLIUM	0.60	U	UG/L	V	0.60	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	BERYLLIUM	2.0	U	UG/L		0.80	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	BERYLLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	BERYLLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	BERYLLIUM	0.60	U	UG/L		0.60	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	BERYLLIUM	4.00	B	UG/L		4.00	B	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	BERYLLIUM	0.60		UG/L		0.50	U	UG/L		18.18
SW035	05/14/91	SW01132WC, SW80123WC	BERYLLIUM	0.50	U	UG/L	V	0.50	U	UG/L	JA	0.00
SW038	12/11/90	SW00624WC, SW80081WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	BERYLLIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	BERYLLIUM	0.60	U	UG/L	V	0.60	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW069	08/20/90	SW00248WC, SW80035WC	BERYLLIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				
CADMIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CADMIUM	2.00	U	UG/L		2.30	B	UG/L		13.95
SW029	04/02/92	SW01875WC, SW80190WC	CADMIUM	2.3	U	UG/L	JA	2.3	U	UG/L	JA	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CADMIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CADMIUM	4.6	U	UG/L	V	4.6	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CADMIUM	4.0	U	UG/L		2.3	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CADMIUM	5.0	U	UG/L	V	5.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CADMIUM	5.0	U	UG/L	JA	5.0	U	UG/L	JA	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CADMIUM	2.9		UG/L		2.7	U	UG/L		7.14
SW035	07/19/90	SW00141WC, SW80016WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CADMIUM	2.7	U	UG/L		2.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CADMIUM	3.3	U	UG/L	V	3.3	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CADMIUM	2.00	U	UG/L		2.10	B	UG/L		4.88
SW039	06/07/90	SW00058WC, SW00059WC	CADMIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CADMIUM	2.7	U	UG/L	V	2.7	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	CADMIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				
CESIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CESIUM	92.00	U	UG/L		92.00	U	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CESIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	CESIUM	1000.0	U	UG/L		1000	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CESIUM	500	U	UG/L		500	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CESIUM	147.00	U	UG/L		147.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CESIUM	92.00	U	UG/L		92.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	CESIUM	500	U	UG/L		500	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CESIUM	200.00	B	UG/L		200.00	B	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	CESIUM	1000	U	UG/L		1000	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CESIUM	76.00	U	UG/L		76.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	CESIUM	500	U	UG/L	V	500	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	CESIUM	147.00	U	UG/L		147.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 17/17					Percent achieving criteria*: 100.000				
CHROMIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CHROMIUM	8.80	B	UG/L		11.60		UG/L		27.45
SW029	04/02/92	SW01875WC, SW80190WC	CHROMIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	CHROMIUM	10.0	U	UG/L		10.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	CHROMIUM	5.5	U	UG/L	V	5.5	U	UG/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	01/15/90	SW03490001, SW03490001D	CHROMIUM	20.0	U	UG/L		8.7	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	CHROMIUM	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CHROMIUM	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CHROMIUM	6.9	U	UG/L		6.9	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	CHROMIUM	6.00	U	UG/L		6.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	CHROMIUM	7.00	B	UG/L		7.10	B	UG/L		1.42
SW035	04/08/91	SW01025WC, SW80109WC	CHROMIUM	4.1	U	UG/L		4.1	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	CHROMIUM	4.1	U	UG/L	V	4.1	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	CHROMIUM	5.00	U	UG/L		5.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	CHROMIUM	10.0	U	UG/L		10.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	CHROMIUM	8.70	B	UG/L		12.60		UG/L		36.62
SW068	03/19/91	SW00929WC, SW80095WC	CHROMIUM	6.9	U	UG/L	V	6.9	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	CHROMIUM	13.00		UG/L		6.00	U	UG/L		73.68
			Number achieving RPD criteria* per number of duplicate pairs: 15/17					Percent achieving criteria*: 88.235				
COBALT												
SW029	09/12/90	SW00311WC, SW80042WC	COBALT	4.50	B	UG/L		4.50	B	UG/L		0.00
SW029	04/02/92	SW01875WC, SW80190WC	COBALT	2.7	U	UG/L	V	2.7	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	COBALT	50.0	U	UG/L		50.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	COBALT	7.3	U	UG/L	V	7.3	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	COBALT	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	COBALT	4.0	U	UG/L	V	4.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	COBALT	3.0	U	UG/L		3.0	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	COBALT	4.00	U	UG/L		4.00	U	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	COBALT	3.6	U	UG/L		3.6	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	COBALT	3.6	U	UG/L	V	3.6	U	UG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	COBALT	3.70	B	UG/L		3.00	U	UG/L		20.90
SW039	06/07/90	SW00058WC, SW00059WC	COBALT	50.0	U	UG/L		50.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	COBALT	3.00	U	UG/L		3.00	U	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	COBALT	3.0	U	UG/L	V	3.0	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	COBALT	4.00	U	UG/L		4.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/16					Percent achieving criteria*: 100.000				
COPPER												
SW029	09/12/90	SW00311WC, SW80042WC	COPPER	12.40	B	UG/L		6.20	B	UG/L		66.67
SW029	04/02/92	SW01875WC, SW80190WC	COPPER	2.3	U	UG/L	V	2.3	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	COPPER	25.0	U	UG/L		25.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	COPPER	6.8		UG/L	V	5.4	U	UG/L	V	22.95
SW034	01/15/90	SW03490001, SW03490001D	COPPER	20.0	U	UG/L		7.3	J	UG/L	A	93.04
SW034	11/07/90	SW00506WC, SW80065WC	COPPER	8.6		UG/L	V	5.0	U	UG/L	V	52.94
SW034	12/04/90	SW00610WC, SW80073WC	COPPER	5.0	U	UG/L	JA	5.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	COPPER	2.5	U	UG/L		2.7		UG/L		7.69
SW035	07/19/90	SW00141WC, SW80016WC	COPPER	6.00	B	UG/L		6.30	B	UG/L		4.88
SW035	10/03/90	SW00410WC, SW80051WC	COPPER	6.10	B	UG/L		6.00	B	UG/L		1.65
SW035	04/08/91	SW01025WC, SW80109WC	COPPER	4.7	U	UG/L		4.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	COPPER	26.0		UG/L	V	28.1		UG/L	JA	7.76
SW038	12/11/90	SW00624WC, SW80081WC	COPPER	6.80	B	UG/L		3.50	B	UG/L		64.08

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW039	06/07/90	SW00058WC, SW00059WC	COPPER	25.0	U	UG/L		25.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	COPPER	4.40	B	UG/L		4.10	B	UG/L		7.06
SW068	03/19/91	SW00929WC, SW80095WC	COPPER	2.5	U	UG/L	V	2.9		UG/L	V	14.81
SW069	08/20/90	SW00248WC, SW80035WC	COPPER	3.00	U	UG/L		3.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 13/17					Percent achieving criteria*: 76.471				
VANADIUM												
SW029	09/12/90	SW00311WC, SW80042WC	VANADIUM	5.50	B	UG/L		7.40	B	UG/L		29.46
SW029	04/02/92	SW01875WC, SW80190WC	VANADIUM	3.5	U	UG/L	V	3.5	U	UG/L	V	0.00
SW031	05/15/90	SW031W051590A, SW031W051590D	VANADIUM	50.0	U	UG/L		50.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	VANADIUM	6.5	U	UG/L	V	6.5	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	VANADIUM	10.0	U	UG/L		3.0	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	VANADIUM	6.8		UG/L	V	6.8		UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	VANADIUM	6.8	B	UG/L	JA	3.1	B	UG/L	V	74.75
SW034	04/04/91	SW01020WC, SW80107WC	VANADIUM	2.0	U	UG/L		2.0	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	VANADIUM	6.10	B	UG/L		7.10	B	UG/L		15.15
SW035	10/03/90	SW00410WC, SW80051WC	VANADIUM	3.70	B	UG/L		3.30	B	UG/L		11.43
SW035	04/08/91	SW01025WC, SW80109WC	VANADIUM	5.7	U	UG/L		5.7	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	VANADIUM	32.0		UG/L	V	27.7		UG/L	V	14.41
SW038	12/11/90	SW00624WC, SW80081WC	VANADIUM	7.50	B	UG/L		7.90	B	UG/L		5.19
SW039	06/07/90	SW00058WC, SW00059WC	VANADIUM	50.0	U	UG/L		50.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	VANADIUM	5.60	B	UG/L		6.50	B	UG/L		14.88
SW068	03/19/91	SW00929WC, SW80095WC	VANADIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	VANADIUM	11.00	B	UG/L		6.10	B	UG/L		57.31
			Number achieving RPD criteria* per number of duplicate pairs: 15/17					Percent achieving criteria*: 88.235				
ZINC												
SW029	09/12/90	SW00311WC, SW80042WC	ZINC	8.60	B	UG/L		9.20	B	UG/L		6.74
SW029	04/02/92	SW01875WC, SW80190WC	ZINC	2.3		UG/L	JA	2.6		UG/L	JA	12.24
SW031	05/15/90	SW031W051590A, SW031W051590D	ZINC	34.1		UG/L		50.4		UG/L		38.58
SW033	08/07/91	SW01438WC, SW80145WC	ZINC	7.2	U	UG/L	V	7.2	U	UG/L	V	0.00
SW034	01/15/90	SW03490001, SW03490001D	ZINC	48.7		UG/L		23.9	UJ	UG/L	A	68.32
SW034	11/07/90	SW00506WC, SW80065WC	ZINC	4.3		UG/L	V	2.0	U	UG/L	V	73.02
SW034	12/04/90	SW00610WC, SW80073WC	ZINC	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	ZINC	4.7	U	UG/L		4.7	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ZINC	11.70	B	UG/L		17.10	B	UG/L		37.50
SW035	10/03/90	SW00410WC, SW80051WC	ZINC	49.30		UG/L		41.90		UG/L		16.23
SW035	04/08/91	SW01025WC, SW80109WC	ZINC	22.2		UG/L		20.3		UG/L		8.94
SW035	05/14/91	SW01132WC, SW80123WC	ZINC	9.5		UG/L	JA	5.7		UG/L	JA	50.00
SW038	12/11/90	SW00624WC, SW80081WC	ZINC	10.80	B	UG/L		14.70	B	UG/L		30.59
SW039	06/07/90	SW00058WC, SW00059WC	ZINC	20.0	U	UG/L		20.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ZINC	6.50	B	UG/L		7.70	B	UG/L		16.90
SW068	03/19/91	SW00929WC, SW80095WC	ZINC	10.3		UG/L	V	12.5		UG/L	V	19.30
SW069	08/20/90	SW00248WC, SW80035WC	ZINC	2.00	U	UG/L		2.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 11/17					Percent achieving criteria*: 64.706				
CALCIUM												
SW029	09/12/90	SW00311WC, SW80042WC	CALCIUM	40300.00		UG/L		41200.00		UG/L		2.21

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW029	04/02/92	SW01875WC, SW80190WC	CALCIUM	32700		UG/L	V	33700		UG/L	V	3.01
SW031	05/15/90	SW031W051590A, SW031W051590D	CALCIUM	69500		UG/L		69400		UG/L		0.14
SW033	08/07/91	SW01438WC, SW80145WC	CALCIUM	30100		UG/L	V	30800		UG/L	V	2.30
SW034	01/15/90	SW03490001, SW03490001D	CALCIUM	49100.0		UG/L		49900		UG/L	V	1.62
SW034	11/07/90	SW00506WC, SW80065WC	CALCIUM	67200		UG/L	V	67500		UG/L	V	0.45
SW034	12/04/90	SW00610WC, SW80073WC	CALCIUM	55300		UG/L	V	63.9	B	UG/L	V	199.54
SW034	04/04/91	SW01020WC, SW80107WC	CALCIUM	50100		UG/L		48600		UG/L		3.04
SW035	07/19/90	SW00141WC, SW80016WC	CALCIUM	75000.00		UG/L		76300.00		UG/L		1.72
SW035	10/03/90	SW00410WC, SW80051WC	CALCIUM	58600.00		UG/L		58300.00		UG/L		0.51
SW035	04/08/91	SW01025WC, SW80109WC	CALCIUM	24600		UG/L		24900		UG/L		1.21
SW035	05/14/91	SW01132WC, SW80123WC	CALCIUM	79800		UG/L	V	77400		UG/L	V	3.05
SW038	12/11/90	SW00624WC, SW80081WC	CALCIUM	101000.00		UG/L		99200.00		UG/L		1.80
SW039	06/07/90	SW00058WC, SW00059WC	CALCIUM	27100		UG/L		26900		UG/L		0.74
SW068	12/10/90	SW00621WC, SW80079WC	CALCIUM	84500.00		UG/L		84800.00		UG/L		0.35
SW068	03/19/91	SW00929WC, SW80095WC	CALCIUM	53400		UG/L	V	51700		UG/L	V	3.24
SW069	08/20/90	SW00248WC, SW80035WC	CALCIUM	61800.00		UG/L		59800.00		UG/L		3.29
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				
SELENIUM												
SW029	09/12/90	SW00311WC, SW80042WC	SELENIUM	2.00	B	UG/L		1.00	BW	UG/L		66.67
SW029	04/02/92	SW01875WC, SW80190WC	SELENIUM	1.2		UG/L	V	1.5		UG/L	JA	22.22
SW031	05/15/90	SW031W051590A, SW031W051590D	SELENIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW033	08/07/91	SW01438WC, SW80145WC	SELENIUM	1.2	U	UG/L	JA	1.2	U	UG/L	JA	0.00
SW034	01/15/90	SW03490001, SW03490001D	SELENIUM	2.0	U	UG/L		2.2	U	UG/L	V	0.00
SW034	11/07/90	SW00506WC, SW80065WC	SELENIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	SELENIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	SELENIUM	1.1	U	UG/L		1.1	U	UG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	SELENIUM	2.00	U	UG/L		2.00	UW	UG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	SELENIUM	1.00	U	UG/L		1.00	U	UG/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	SELENIUM	1.1	U	UG/L		1.1	U	UG/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	SELENIUM	1.2		UG/L	JA	1.1	U	UG/L	JA	8.70
SW038	12/11/90	SW00624WC, SW80081WC	SELENIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
SW039	06/07/90	SW00058WC, SW00059WC	SELENIUM	5.0	U	UG/L		5.0	U	UG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	SELENIUM	1.00	B	UG/L		1.00	B	UG/L		0.00
SW068	03/19/91	SW00929WC, SW80095WC	SELENIUM	1.1	U	UG/L	V	1.2		UG/L	V	8.70
SW069	08/20/90	SW00248WC, SW80035WC	SELENIUM	2.00	U	UG/L		2.00	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 16/17					Percent achieving criteria*: 94.118				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Filtered Metal Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
ALUMINUM										
SW046	08/08/91	SW01457WC, SW80147WC	ALUMINUM	38.9	UG/L	JA	21	UG/L	JA	59.77
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000			
IRON										
SW046	08/08/91	SW01457WC, SW80147WC	IRON	10.1	UG/L	JA	7.0 U	UG/L	JA	36.26
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000			
LEAD										
			Number achieving RPD criteria* per number of duplicate pairs: 0/0				Percent achieving criteria*: **********			
LITHIUM										
SW046	08/08/91	SW01457WC, SW80147WC	LITHIUM	15.0	UG/L	JA	15	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
MAGNESIUM										
SW046	08/08/91	SW01457WC, SW80147WC	MAGNESIUM	19300	UG/L	V	19000	UG/L	V	1.57
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
MANGANESE										
SW046	08/08/91	SW01457WC, SW80147WC	MANGANESE	2.1	UG/L	V	2.7	UG/L	V	25.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
MERCURY										
SW046	08/08/91	SW01457WC, SW80147WC	MERCURY	0.21	UG/L	JA	0.20 U	UG/L	JA	4.88
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
MOLYBDENUM										
SW046	08/08/91	SW01457WC, SW80147WC	MOLYBDENUM	3.4	UG/L	JA	3.0 U	UG/L	JA	12.50
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
NICKEL										
SW046	08/08/91	SW01457WC, SW80147WC	NICKEL	4.0 U	UG/L	JA	4.0 U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
POTASSIUM										
SW046	08/08/91	SW01457WC, SW80147WC	POTASSIUM	3050	UG/L	V	3200	UG/L	V	4.80
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
SILICON										
SW046	08/08/91	SW01457WC, SW80147WC	SILICON	5850	UG/L	V	5950	UG/L	V	1.69
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
SILVER										
SW046	08/08/91	SW01457WC, SW80147WC	SILVER	2.0 U	UG/L	V	2.0 U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
SODIUM										

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW046	08/08/91	SW01457WC, SW80147WC	SODIUM	41700		UG/L	V	40000		UG/L	V	4.16
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
STRONTIUM												
SW046	08/08/91	SW01457WC, SW80147WC	STRONTIUM	578		UG/L	JA	550		UG/L	JA	4.96
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
THALLIUM												
SW046	08/08/91	SW01457WC, SW80147WC	THALLIUM	15.0	U	UG/L	JA	15	U	UG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ANTIMONY												
SW046	08/08/91	SW01457WC, SW80147WC	ANTIMONY	11.2		UG/L	V	11	U	UG/L	V	1.80
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ARSENIC												
SW046	08/08/91	SW01457WC, SW80147WC	ARSENIC	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BARIUM												
SW046	08/08/91	SW01457WC, SW80147WC	BARIUM	133		UG/L	V	130		UG/L	V	2.28
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
BERYLLIUM												
SW046	08/08/91	SW01457WC, SW80147WC	BERYLLIUM	1.0	U	UG/L	V	1.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CADMIUM												
SW046	08/08/91	SW01457WC, SW80147WC	CADMIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CESIUM												
SW046	08/08/91	SW01457WC, SW80147WC	CESIUM	50.0		UG/L	V	50	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CHROMIUM												
SW046	08/08/91	SW01457WC, SW80147WC	CHROMIUM	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
COBALT												
SW046	08/08/91	SW01457WC, SW80147WC	COBALT	2.0	U	UG/L	V	2.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
COPPER												
SW046	08/08/91	SW01457WC, SW80147WC	COPPER	3.0	U	UG/L	V	3.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
VANADIUM												

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G15-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Filtered Metal Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW046	08/08/91	SW01457WC, SW80147WC	VANADIUM	3.0	U	UG/L	V	3.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
ZINC												
SW046	08/08/91	SW01457WC, SW80147WC	ZINC	3.0	U	UG/L	V	3.0	U	UG/L	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
CALCIUM												
SW046	08/08/91	SW01457WC, SW80147WC	CALCIUM	82600		UG/L	V	79000		UG/L	V	4.46
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
SELENIUM												
SW046	08/08/91	SW01457WC, SW80147WC	SELENIUM	4.0	U	UG/L	V	6.0		UG/L	V	40.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
PLUTONIUM-239,-240												
6986	03/06/91	GW00925IT, GW00927IT	PLUTONIUM-239,-240	.03991		PCI/L		.04323		PCI/L		7.99
6986	08/20/91	GW01692IT, GW01695IT	PLUTONIUM-239,-240	.02564		PCI/L	V	.05846		PCI/L	V	78.05
6886	05/23/90	G68860523021005, G68860523021045	PLUTONIUM-239,-240	-0.001		PCI/L	A	-0.002		PCI/L	A	66.67
6886	08/01/90	GW00187IT, GW00190IT	PLUTONIUM-239,-240	.003396	J	PCI/L	A	.001448	J	PCI/L	A	80.43
6886	05/14/91	GW01286IT, GW01289IT	PLUTONIUM-239,-240	.0009464	J	PCI/L	V	.001502	J	PCI/L	V	45.38
6886	11/25/91	GW02058IT, GW02060IT	PLUTONIUM-239,-240	-.000496	J	PCI/L	A	.001314	J	PCI/L	A	442.54
6886	02/26/92	GW02381IT, GW02383IT	PLUTONIUM-239,-240	.001231	J	PCI/L	V	0	J	PCI/L	V	200.00
6886	05/15/92	GW02825IT, GW02827IT	PLUTONIUM-239,-240	0	J	PCI/L	A	-.000358	J	PCI/L	A	200.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/8					Percent achieving criteria*: 12.500				
TRITIUM												
6986	02/12/90	G69860290001, G69860290001D	TRITIUM	100		PCI/L		150		PCI/L		40.00
6986	03/06/91	GW00925IT, GW00927IT	TRITIUM	173	J	PCI/L	V	108.3	J	PCI/L	V	46.00
6986	08/20/91	GW01692IT, GW01695IT	TRITIUM	77.43	J	PCI/L	V	122	J	PCI/L	V	44.70
6886	05/23/90	G68860523021005, G68860523021045	TRITIUM	220		PCI/L	JA	320		PCI/L	JA	37.04
6886	08/01/90	GW00187IT, GW00190IT	TRITIUM	61.51	J	PCI/L		127.9	J	PCI/L		70.10
6886	05/14/91	GW01286IT, GW01289IT	TRITIUM	34.31	J	PCI/L	V	42.66	J	PCI/L	V	21.70
6886	11/25/91	GW02058IT, GW02060IT	TRITIUM	99.3	J	PCI/L	V	61.7	J	PCI/L	V	46.71
6886	02/26/92	GW02381IT, GW02383IT	TRITIUM	-114	J	PCI/L	A	-37.7	J	PCI/L	A	100.59
6886	05/15/92	GW02825IT, GW02827IT	TRITIUM	.9632	J	PCI/L	V	115.6	J	PCI/L	V	196.69
			Number achieving RPD criteria* per number of duplicate pairs: 1/9					Percent achieving criteria*: 11.111				
CESIUM-137												
6986	03/06/91	GW00925IT, GW00927IT	CESIUM-137	.5278	J	PCI/L	A	.5661	J	PCI/L	A	7.00
6986	08/20/91	GW01692IT, GW01695IT	CESIUM-137	.3204	J	PCI/L		.2655	J	PCI/L		18.74
6886	08/01/90	GW00187IT, GW00190IT	CESIUM-137	-.217	J	PCI/L	A	.1109	J	PCI/L	A	618.10
6886	05/14/91	GW01286IT, GW01289IT	CESIUM-137	-.207	J	PCI/L	A	.1511	J	PCI/L	A	1281.2
6886	11/25/91	GW02058IT, GW02060IT	CESIUM-137	.2244	J	PCI/L	A	-.159	J	PCI/L	A	1172.5
6886	02/26/92	GW02381IT, GW02383IT	CESIUM-137	-.384	J	PCI/L	A	-.131	J	PCI/L	A	98.25
6886	05/15/92	GW02825IT, GW02827IT	CESIUM-137	.2209	J	PCI/L	A	-.684	J	PCI/L	A	390.80
			Number achieving RPD criteria* per number of duplicate pairs: 2/7					Percent achieving criteria*: 28.571				
URANIUM-233,-234												
6886	05/23/90	G68860523021005, G68860523021045	URANIUM-233,-234	0.62		PCI/L	A	0.94		PCI/L	A	41.03
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
STRONTIUM-89,-90												
6886	05/23/90	G68860523021005, G68860523021045	STRONTIUM-89,-90	0.49		PCI/L	A	0.57		PCI/L	A	15.09
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PLUTONIUM-238												
6886	08/01/90	GW00187IT, GW00190IT	PLUTONIUM-238	.0007568	J	PCI/L		-.000182	J	PCI/L		326.65
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
AMERICIUM-241												
6986	03/06/91	GW00925IT, GW00927IT	AMERICIUM-241	.009547	J	PCI/L		.007173	J	PCI/L		28.40
6986	08/20/91	GW01692IT, GW01695IT	AMERICIUM-241	.005165	J	PCI/L	A	.003874	J	PCI/L	A	28.57

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-a

Relative Percent Difference from the Mean
OU1 Groundwater Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
6886	05/23/90	G68860523021005, G68860523021045	AMERICIUM-241	0.006		PCI/L	A	0.007		PCI/L	A	15.38
6886	08/01/90	GW00187IT, GW00190IT	AMERICIUM-241	.006684	J	PCI/L	A	.001157	J	PCI/L	A	140.98
6886	05/14/91	GW01286IT, GW01289IT	AMERICIUM-241	.0009514	J	PCI/L	A	.0009754	J	PCI/L	A	2.49
6886	11/25/91	GW02058IT, GW02060IT	AMERICIUM-241	.0006904	J	PCI/L	A	.007293	J	PCI/L	A	165.41
6886	02/26/92	GW02381IT, GW02383IT	AMERICIUM-241	.009159	J	PCI/L	A	.004102	J	PCI/L	A	76.27
6886	05/15/92	GW02825IT, GW02827IT	AMERICIUM-241	0	J	PCI/L	A	.001035	J	PCI/L	A	200.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/8					Percent achieving criteria*: 50.000				
URANIUM-235												
6886	05/23/90	G68860523021005, G68860523021045	URANIUM-235	0.06		PCI/L	A	0.10		PCI/L	A	50.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
URANIUM-238												
6886	05/23/90	G68860523021005, G68860523021045	URANIUM-238	0.50		PCI/L	A	0.38		PCI/L	A	27.27
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
PLUTONIUM-239,-240												
SW029	09/12/90	SW00311WC, SW80042WC	PLUTONIUM-239,-240	.00587		PCI/L	V	.02108		PCI/L	V	112.88
SW031	05/15/90	SW031W051590A, SW031W051590D	PLUTONIUM-239,-240	0.000		PCI/L		0.003		PCI/L		200.00
SW033	08/07/91	SW01438WC, SW80145WC	PLUTONIUM-239,-240	.002141	J	PCI/L		-.000306	J	PCI/L		266.70
SW034	08/13/90	SW00236WC, SW80029WC	PLUTONIUM-239,-240	0.0		PCI/L		.005487		PCI/L		200.00
SW034	06/13/91	SW01230WC, SW80131WC	PLUTONIUM-239,-240	0	J	PCI/L		.003301	J	PCI/L		200.00
SW034	07/10/91	SW01333WC, SW80139WC	PLUTONIUM-239,-240	0.001	J	PCI/L	A	.001543	J	PCI/L	V	42.71
SW039	06/07/90	SW00058WC, SW00059WC	PLUTONIUM-239,-240	0.000		PCI/L	A	0.001		PCI/L	A	200.00
SW069	08/20/90	SW00248WC, SW80035WC	PLUTONIUM-239,-240	.002008		PCI/L		.004117		PCI/L		68.87
			Number achieving RPD criteria* per number of duplicate pairs: 0/8					Percent achieving criteria*: 0.000				
GROSS ALPHA												
SW029	09/12/90	SW00311WC, SW80042WC	GROSS ALPHA	.2357		PCI/L	V	1.561		PCI/L	V	147.53
SW034	01/15/90	SW03490001, SW03490001D	GROSS ALPHA	0.6		PCI/L		0.4		PCI/L		40.00
SW034	08/13/90	SW00236WC, SW80029WC	GROSS ALPHA	.3553		PCI/L		1.195		PCI/L		108.33
SW035	10/03/90	SW00410WC, SW80051WC	GROSS ALPHA	2.063		PCI/L	V	3.021		PCI/L	V	37.69
SW069	08/20/90	SW00248WC, SW80035WC	GROSS ALPHA	1.398		PCI/L		2.745		PCI/L		65.03
			Number achieving RPD criteria* per number of duplicate pairs: 0/5					Percent achieving criteria*: 0.000				
GROSS ALPHA												
SW031	05/15/90	SW031W051590A, SW031W051590D	GROSS ALPHA	5.8		PCI/L		5.7		PCI/L		1.74
SW039	06/07/90	SW00058WC, SW00059WC	GROSS ALPHA	0.9		PCI/L	A	0.9		PCI/L	A	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
GROSS BETA												
SW029	09/12/90	SW00311WC, SW80042WC	GROSS BETA	2.918		PCI/L	A	3.575		PCI/L	A	20.24
SW034	08/13/90	SW00236WC, SW80029WC	GROSS BETA	3.25		PCI/L		1.778		PCI/L		58.55
SW035	10/03/90	SW00410WC, SW80051WC	GROSS BETA	5.631		PCI/L	V	6.048		PCI/L	V	7.14
SW069	08/20/90	SW00248WC, SW80035WC	GROSS BETA	4.659		PCI/L		4.837		PCI/L		3.75
			Number achieving RPD criteria* per number of duplicate pairs: 3/4					Percent achieving criteria*: 75.000				
GROSS BETA												
SW031	05/15/90	SW031W051590A, SW031W051590D	GROSS BETA	7.4		PCI/L		7.3		PCI/L		1.36
SW039	06/07/90	SW00058WC, SW00059WC	GROSS BETA	3.4		PCI/L	A	1.1		PCI/L	A	102.22
			Number achieving RPD criteria* per number of duplicate pairs: 1/2					Percent achieving criteria*: 50.000				
TRITIUM												
SW033	08/07/91	SW01438WC, SW80145WC	TRITIUM	22.37	J	PCI/L	V	43.81	J	PCI/L	V	64.79
SW034	01/15/90	SW03490001, SW03490001D	TRITIUM	70		PCI/L		-50		PCI/L		1200.0
SW034	08/13/90	SW00236WC, SW80029WC	TRITIUM	-30.2948		PCI/L	JA	-29.9069		PCI/L	JA	1.29
SW034	11/07/90	SW00506WC, SW80065WC	TRITIUM	80.	U	PCI/L	V	100.	U	PCI/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	TRITIUM	190.0		PCI/L	V	200.0	U	PCI/L	V	5.13
SW034	04/04/91	SW01020WC, SW80107WC	TRITIUM	150.0		PCI/L		150.0		PCI/L		0.00
SW034	06/13/91	SW01230WC, SW80131WC	TRITIUM	112.8	J	PCI/L	V	258.4	J	PCI/L	V	78.45
SW034	07/10/91	SW01333WC, SW80139WC	TRITIUM	-11.6	J	PCI/L	V	39.57	J	PCI/L	V	365.89
SW035	04/08/91	SW01025WC, SW80109WC	TRITIUM	200.0	U	PCI/L		200.0	U	PCI/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	TRITIUM	82.00		PCI/L	V	130.0		PCI/L	V	45.28
SW038	12/11/90	SW00624WC, SW80081WC	TRITIUM	0	U	PCI/L	V	-50.		PCI/L	V	200.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW068	12/10/90	SW00621WC, SW80079WC	TRITIUM	0	U	PCI/L	V	-100.	U	PCI/L	V	0.00
SW068	03/19/91	SW00929WC, SW80095WC	TRITIUM	110.	U	PCI/L	V	100.	U	PCI/L	V	0.00
SW069	08/20/90	SW00248WC, SW80035WC	TRITIUM	-44.304		PCI/L	JA	-81.7494		PCI/L	JA	59.41
			Number achieving RPD criteria* per number of duplicate pairs: 7/14					Percent achieving criteria*: 50.000				
CESIUM-137												
SW029	09/12/90	SW00311WC, SW80042WC	CESIUM-137	.09007		PCI/L	V	-.009966		PCI/L	V	249.77
SW033	08/07/91	SW01438WC, SW80145WC	CESIUM-137	.3598	J	PCI/L	A	-.151	J	PCI/L	A	489.27
SW034	01/15/90	SW03490001, SW03490001D	CESIUM-137	0.02		PCI/L		-0.04		PCI/L		600.00
SW034	08/13/90	SW00236WC, SW80029WC	CESIUM-137	.2649		PCI/L		-.0256		PCI/L		242.79
SW034	06/13/91	SW01230WC, SW80131WC	CESIUM-137	.03959	J	PCI/L	A	.2825	J	PCI/L	A	150.83
SW034	07/10/91	SW01333WC, SW80139WC	CESIUM-137	.1311	J	PCI/L		.4363	J	PCI/L	A	107.58
SW035	10/03/90	SW00410WC, SW80051WC	CESIUM-137	-.1673		PCI/L	V	.08098		PCI/L	V	575.25
SW039	06/07/90	SW00058WC, SW00059WC	CESIUM-137	0.74		PCI/L	A	0.59		PCI/L	A	22.56
SW069	08/20/90	SW00248WC, SW80035WC	CESIUM-137	-.01621		PCI/L		-.001307		PCI/L		170.15
			Number achieving RPD criteria* per number of duplicate pairs: 1/9					Percent achieving criteria*: 11.111				
STRONTIUM-90												
SW029	09/12/90	SW00311WC, SW80042WC	STRONTIUM-90	.7658		PCI/L	V	.3553		PCI/L	V	73.23
SW034	01/15/90	SW03490001, SW03490001D	STRONTIUM-90	0.52		PCI/L		0.23		PCI/L		77.33
SW034	08/13/90	SW00236WC, SW80029WC	STRONTIUM-90	.222		PCI/L		.1641		PCI/L		29.99
SW035	10/03/90	SW00410WC, SW80051WC	STRONTIUM-90	-.01769		PCI/L	A	.03496		PCI/L	A	609.73
SW069	08/20/90	SW00248WC, SW80035WC	STRONTIUM-90	.2462		PCI/L		-.007927		PCI/L		213.31
			Number achieving RPD criteria* per number of duplicate pairs: 1/5					Percent achieving criteria*: 20.000				
URANIUM-233,-234												
SW029	09/12/90	SW00311WC, SW80042WC	URANIUM-233,-234	.5294		PCI/L	A	.5449		PCI/L	A	2.89
SW031	05/15/90	SW031W051590A, SW031W051590D	URANIUM-233,-234	3.26		PCI/L		3.49		PCI/L		6.81
SW034	01/15/90	SW03490001, SW03490001D	URANIUM-233,-234	0.26		PCI/L		0.30		PCI/L		14.29
SW034	08/13/90	SW00236WC, SW80029WC	URANIUM-233,-234	.1443		PCI/L		.04732		PCI/L		101.22
SW039	06/07/90	SW00058WC, SW00059WC	URANIUM-233,-234	0.26		PCI/L	A	0.18		PCI/L	A	36.36
SW069	08/20/90	SW00248WC, SW80035WC	URANIUM-233,-234	2.328		PCI/L		2.952		PCI/L		23.64
			Number achieving RPD criteria* per number of duplicate pairs: 4/6					Percent achieving criteria*: 66.667				
STRONTIUM-89,-90												
SW031	05/15/90	SW031W051590A, SW031W051590D	STRONTIUM-89,-90	0.37		PCI/L		0.14		PCI/L		90.20
SW039	06/07/90	SW00058WC, SW00059WC	STRONTIUM-89,-90	1.09		PCI/L	A	1.20		PCI/L	A	9.61
			Number achieving RPD criteria* per number of duplicate pairs: 1/2					Percent achieving criteria*: 50.000				
GROSS BETA PARTICLE ACTIVITY												
SW034	01/15/90	SW03490001, SW03490001D	GROSS BETA PARTICLE ACTIVITY	4.4		PCI/L		4.2		PCI/L		4.65
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
AMERICIUM-241												
SW031	05/15/90	SW031W051590A, SW031W051590D	AMERICIUM-241	0.027		PCI/L		0.008		PCI/L		108.57
SW033	08/07/91	SW01438WC, SW80145WC	AMERICIUM-241	.01782		PCI/L		.008811	J	PCI/L		67.66
SW034	01/15/90	SW03490001, SW03490001D	AMERICIUM-241	0.008		PCI/L		0.007		PCI/L		13.33
SW034	08/13/90	SW00236WC, SW80029WC	AMERICIUM-241	.001424		PCI/L		.003497		PCI/L		84.25

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-b

Relative Percent Difference from the Mean
OU1 Surface Water Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	04/04/91	SW01020WC, SW80107WC	AMERICIUM-241	-.005	U	PCI/L	A	.003	U	PCI/L	A	0.00
SW034	06/13/91	SW01230WC, SW80131WC	AMERICIUM-241	.001465	J	PCI/L		.00276	J	PCI/L		61.30
SW034	07/10/91	SW01333WC, SW80139WC	AMERICIUM-241	0.0059	J	PCI/L	V	.002268	J	PCI/L	V	88.93
SW035	04/08/91	SW01025WC, SW80109WC	AMERICIUM-241	.004	U	PCI/L	A	.011	U	PCI/L	A	0.00
SW039	06/07/90	SW00058WC, SW00059WC	AMERICIUM-241	0.006		PCI/L	A	0.007		PCI/L	A	15.38
SW069	08/20/90	SW00248WC, SW80035WC	AMERICIUM-241	-.002696		PCI/L		.006977		PCI/L		451.90
			Number achieving RPD criteria* per number of duplicate pairs: 4/10					Percent achieving criteria*: 40.000				
PLUTONIUM-239												
SW034	01/15/90	SW03490001, SW03490001D	PLUTONIUM-239	0.008		PCI/L		0.004		PCI/L		66.67
SW034	04/04/91	SW01020WC, SW80107WC	PLUTONIUM-239	.000	U	PCI/L	A	.000	U	PCI/L	A	0.00
SW035	04/08/91	SW01025WC, SW80109WC	PLUTONIUM-239	.002	U	PCI/L	A	-.002	U	PCI/L	A	0.00
SW035	05/14/91	SW01132WC, SW80123WC	PLUTONIUM-239	.004	U	PCI/L	A	-.003	U	PCI/L	A	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/4					Percent achieving criteria*: 75.000				
URANIUM-235												
SW029	09/12/90	SW00311WC, SW80042WC	URANIUM-235	.01658		PCI/L	A	.0668		PCI/L	A	120.46
SW031	05/15/90	SW031W051590A, SW031W051590D	URANIUM-235	0.39		PCI/L		0.13		PCI/L		100.00
SW034	01/15/90	SW03490001, SW03490001D	URANIUM-235	0.09		PCI/L		0.08		PCI/L		11.76
SW034	08/13/90	SW00236WC, SW80029WC	URANIUM-235	0.0		PCI/L		.1146		PCI/L		200.00
SW039	06/07/90	SW00058WC, SW00059WC	URANIUM-235	0.05		PCI/L	A	0.04		PCI/L	A	22.22
SW069	08/20/90	SW00248WC, SW80035WC	URANIUM-235	.06128		PCI/L		.3299		PCI/L		137.34
			Number achieving RPD criteria* per number of duplicate pairs: 2/6					Percent achieving criteria*: 33.333				
URANIUM-238												
SW029	09/12/90	SW00311WC, SW80042WC	URANIUM-238	.3834		PCI/L	A	.3794		PCI/L	A	1.05
SW031	05/15/90	SW031W051590A, SW031W051590D	URANIUM-238	4.61		PCI/L		4.10		PCI/L		11.71
SW034	01/15/90	SW03490001, SW03490001D	URANIUM-238	0.08		PCI/L		0.39		PCI/L		131.91
SW034	08/13/90	SW00236WC, SW80029WC	URANIUM-238	.1443		PCI/L		.04732		PCI/L		101.22
SW039	06/07/90	SW00058WC, SW00059WC	URANIUM-238	0.16		PCI/L	A	0.49		PCI/L	A	101.54
SW069	08/20/90	SW00248WC, SW80035WC	URANIUM-238	2.531		PCI/L		2.725		PCI/L		7.38
			Number achieving RPD criteria* per number of duplicate pairs: 3/6					Percent achieving criteria*: 50.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
PLUTONIUM-239,-240												
SW045	02/19/90	SW04590002, SW04590002D	PLUTONIUM-239,-240	0.004		PCI/L	A	0		PCI/L	A	200.00
SW046	08/08/91	SW01457WC, SW80147WC	PLUTONIUM-239,-240	-0.0001	J	PCI/L		-.00062	J	PCI/L		144.44
			Number achieving RPD criteria* per number of duplicate pairs: 0/2					Percent achieving criteria*: 0.000				
TRITIUM												
SW046	08/08/91	SW01457WC, SW80147WC	TRITIUM	328	J	PCI/L	V	156.5	J	PCI/L	V	70.79
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
CESIUM-137												
SW046	08/08/91	SW01457WC, SW80147WC	CESIUM-137	-.106	J	PCI/L	A	-.016	J	PCI/L	A	147.54
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
URANIUM-233,-234												
SW045	02/19/90	SW04590002, SW04590002D	URANIUM-233,-234	3.8		PCI/L	A	4.6		PCI/L	A	19.05
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
STRONTIUM-89,-90												
			Number achieving RPD criteria* per number of duplicate pairs: 0/0					Percent achieving criteria*: **********				
CESIUM - UNKNOWN ISOTOPE												
			Number achieving RPD criteria* per number of duplicate pairs: 0/0					Percent achieving criteria*: **********				
AMERICIUM-241												
SW045	02/19/90	SW04590002, SW04590002D	AMERICIUM-241	0.004		PCI/L	A	0.001		PCI/L	A	120.00
SW046	08/08/91	SW01457WC, SW80147WC	AMERICIUM-241	0.0046	J	PCI/L		.003214	J	PCI/L		35.47
			Number achieving RPD criteria* per number of duplicate pairs: 0/2					Percent achieving criteria*: 0.000				
URANIUM-235												
SW045	02/19/90	SW04590002, SW04590002D	URANIUM-235	0.2		PCI/L	A	0.2		PCI/L	A	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
URANIUM-238												
SW045	02/19/90	SW04590002, SW04590002D	URANIUM-238	3		PCI/L	A	3.2		PCI/L	A	6.45
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-d

Relative Percent Difference from the Mean
OU1 Sediment Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
PLUTONIUM-239,-240										
SED028	03/18/91	SS00186WC, SS80093WC	PLUTONIUM-239,-240	.1798	PCI/G	V	.1518	PCI/G	V	16.89
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
GROSS ALPHA										
SED028	03/18/91	SS00186WC, SS80093WC	GROSS ALPHA	9.482	PCI/G	A	13.61	PCI/G	A	35.75
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
GROSS BETA										
SED028	03/18/91	SS00186WC, SS80093WC	GROSS BETA	26.46	PCI/G	A	22.64	PCI/G	A	15.56
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
URANIUM-233,-234										
			Number achieving RPD criteria* per number of duplicate pairs: 0/0				Percent achieving criteria*: **********			
AMERICIUM-241										
SED028	03/18/91	SS00186WC, SS80093WC	AMERICIUM-241	.04217	PCI/G	V	.02533	PCI/G	V	49.90
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000			
URANIUM-235										
			Number achieving RPD criteria* per number of duplicate pairs: 0/0				Percent achieving criteria*: **********			
URANIUM-238										
			Number achieving RPD criteria* per number of duplicate pairs: 0/0				Percent achieving criteria*: **********			

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-e

Relative Percent Difference from the Mean
OU1 Surface Soil Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
PLUTONIUM-239,-240										
RA011	02/27/92	SS03021WS, SS03025WS	PLUTONIUM-239,-240	1.063	PCI/G	A	1.541	PCI/G	A	36.71
RA015	02/27/92	SS03030WS, SS03031WS	PLUTONIUM-239,-240	.2249	PCI/G	A	.2145	PCI/G	A	4.73
RA031	03/03/92	SS03050WS, SS03051WS	PLUTONIUM-239,-240	3.044	PCI/G		2.411	PCI/G		23.21
			Number achieving RPD criteria* per number of duplicate pairs: 3/3				Percent achieving criteria*: 100.000			
GROSS ALPHA										
RA031	03/03/92	SS03050WS, SS03051WS	GROSS ALPHA	10.74	PCI/G		11.03	PCI/G		2.66
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
GROSS BETA										
RA011	02/27/92	SS03021WS, SS03025WS	GROSS BETA	24.87	PCI/G	A	25.14	PCI/G	A	1.08
RA015	02/27/92	SS03030WS, SS03031WS	GROSS BETA	37.44	PCI/G	A	33.66	PCI/G	A	10.63
RA031	03/03/92	SS03050WS, SS03051WS	GROSS BETA	31.09	PCI/G		31.23	PCI/G		0.45
			Number achieving RPD criteria* per number of duplicate pairs: 3/3				Percent achieving criteria*: 100.000			
URANIUM-233,-234										
RA011	02/27/92	SS03021WS, SS03025WS	URANIUM-233,-234	.835	PCI/G	A	.8337	PCI/G	A	0.16
RA031	03/03/92	SS03050WS, SS03051WS	URANIUM-233,-234	1.215	PCI/G		.8434	PCI/G		36.11
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
RADIUM-226										
RA031	03/03/92	SS03050WS, SS03051WS	RADIUM-226	.708	PCI/G		.7334	PCI/G		3.52
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
AMERICIUM-241										
RA031	03/03/92	SS03050WS, SS03051WS	AMERICIUM-241	.5372	PCI/G		.5441	PCI/G		1.28
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
URANIUM-235										
RA011	02/27/92	SS03021WS, SS03025WS	URANIUM-235	.01762 J	PCI/G	A	.03945 J	PCI/G	A	76.50
RA031	03/03/92	SS03050WS, SS03051WS	URANIUM-235	.05843 J	PCI/G		.02217 J	PCI/G		89.98
			Number achieving RPD criteria* per number of duplicate pairs: 0/2				Percent achieving criteria*: 0.000			
RADIUM-228										
RA031	03/03/92	SS03050WS, SS03051WS	RADIUM-228	1.897	PCI/G		1.504	PCI/G		23.11
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
URANIUM-238										
RA011	02/27/92	SS03021WS, SS03025WS	URANIUM-238	.7136	PCI/G	A	.9947	PCI/G	A	32.91
RA031	03/03/92	SS03050WS, SS03051WS	URANIUM-238	1.58	PCI/G		1.079	PCI/G		37.68
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
PLUTONIUM-239,-240												
30591	08/14/91	BH00049EBU1, BH00047EBU1	PLUTONIUM-239,-240	.012	J	PCI/G	V	.001422	J	PCI/G	V	157.62
30691	08/15/91	BH00056EBU1, BH00055EBU1	PLUTONIUM-239,-240	0	J	PCI/G	V	.001409	J	PCI/G	V	200.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	PLUTONIUM-239,-240	0.002		PCI/G		0.002		PCI/G		0.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	PLUTONIUM-239,-240	0.002		PCI/G		0.002		PCI/G		0.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	PLUTONIUM-239,-240	0.002		PCI/G		0.004		PCI/G		66.67
31291	08/21/91	BH00094EBU1, BH00091EBU1	PLUTONIUM-239,-240	0.000		PCI/G		0.002		PCI/G		200.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	PLUTONIUM-239,-240	0.010		PCI/G		0.005		PCI/G		66.67
31691	08/26/91	BH00113EBU1, BH00112EBU1	PLUTONIUM-239,-240	0.001		PCI/G		-0.003		PCI/G		400.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	PLUTONIUM-239,-240	0.003		PCI/G	V	0.012		PCI/G	V	120.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	PLUTONIUM-239,-240	0.036		PCI/G		0.052		PCI/G		36.36
32491	09/04/91	BH00240EBU1, BH00239EBU1	PLUTONIUM-239,-240	0.012		PCI/G	V	0.027		PCI/G	V	76.92
32691	09/05/91	BH00250EBU1, BH00249EBU1	PLUTONIUM-239,-240	0.272		PCI/G	V	0.255		PCI/G	V	6.45
32891	09/06/91	BH00258EBU1, BH00257EBU1	PLUTONIUM-239,-240	0.112		PCI/G	V	0.039		PCI/G	V	96.69
33191	09/09/91	BH00275EBU1, BH00274EBU1	PLUTONIUM-239,-240	0.948		PCI/G	V	1.256		PCI/G	V	27.95
33291	09/10/91	BH00289EBU1, BH00288EBU1	PLUTONIUM-239,-240	0.003		PCI/G	V	0.024		PCI/G	V	155.56
33591	09/11/91	BH00295EBU1, BH00294EBU1	PLUTONIUM-239,-240	0.246		PCI/G	V	0.164		PCI/G	V	40.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	PLUTONIUM-239,-240	0.003		PCI/G	V	0.006		PCI/G	V	66.67
33991	09/13/91	BH00365EBU1, BH00364EBU1	PLUTONIUM-239,-240	0.022		PCI/G	V	0.023		PCI/G	V	4.44
34091	09/16/91	BH00372EBU1, BH00371EBU1	PLUTONIUM-239,-240	0.020		PCI/G	V	0.017		PCI/G	V	16.22
34291	09/16/91	BH00380EBU1, BH00379EBU1	PLUTONIUM-239,-240	0.091		PCI/G	V	0.112		PCI/G	V	20.69
34491	09/17/91	BH00386EBU1, BH00385EBU1	PLUTONIUM-239,-240	.001196	J	PCI/G	V	0	J	PCI/G	V	200.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	PLUTONIUM-239,-240	1.117		PCI/G	V	.7821		PCI/G	V	35.27
34891	09/19/91	BH00405EBU1, BH00403EBU1	PLUTONIUM-239,-240	.02066	J	PCI/G	V	.002926	J	PCI/G	V	150.38
34991	09/20/91	BH00414EBU1, BH00413EBU1	PLUTONIUM-239,-240	.003844	J	PCI/G	A	.01915	J	PCI/G	V	133.13
35291	09/24/91	BH00423EBU1, BH00422EBU1	PLUTONIUM-239,-240	.02224	J	PCI/G	V	.0369		PCI/G	V	49.58
35391	09/24/91	BH00345EBU1, BH00344EBU1	PLUTONIUM-239,-240	.01551	J	PCI/G	V	.0238	J	PCI/G	V	42.18
35491	09/24/91	BH00432EBU1, BH00431EBU1	PLUTONIUM-239,-240	.001056	J	PCI/G	V	.001105	J	PCI/G	V	4.53
35591	09/26/91	BH00437EBU1, BH00436EBU1	PLUTONIUM-239,-240	-.0018	J	PCI/G	V	.001462	J	PCI/G	V	1930.2
35791	09/27/91	BH00442EBU1, BH00441EBU1	PLUTONIUM-239,-240	.01084	J	PCI/G	V	0	J	PCI/G	V	200.00
35891	10/01/91	BH00451EBU1, BH00450EBU1	PLUTONIUM-239,-240	.008995	J	PCI/G	V	0	J	PCI/G	V	200.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	PLUTONIUM-239,-240	19.47		PCI/G	V	31.61		PCI/G	V	47.53
36291	10/03/91	BH00471EBU1, BH00470EBU1	PLUTONIUM-239,-240	.001142	J	PCI/G	V	.003507	J	PCI/G	V	101.74
36391	10/04/91	BH00524EBU1, BH00523EBU1	PLUTONIUM-239,-240	.05794		PCI/G	V	.03612		PCI/G	V	46.40
36491	10/04/91	BH00478EBU1, BH00477EBU1	PLUTONIUM-239,-240	.009394	J	PCI/G	V	.001402	J	PCI/G	V	148.05
36591	10/07/91	BH00489EBU1, BH00488EBU1	PLUTONIUM-239,-240	.03298		PCI/G	A	.03008		PCI/G	A	9.20
36691	10/10/91	BH00544EBU1, BH00543EBU1	PLUTONIUM-239,-240	-.00176	J	PCI/G	A	.001839	J	PCI/G	A	9111.4
36791	10/09/91	BH00600EBU1, BH00499EBU1	PLUTONIUM-239,-240	.01586	J	PCI/G	A	.0262	J	PCI/G	A	49.17
36891	10/10/91	BH00610EBU1, BH00609EBU1	PLUTONIUM-239,-240	.009475	J	PCI/G	A	.01769	J	PCI/G	A	60.48
39591	11/20/91	BH00861EBU1, BH00860EBU1	PLUTONIUM-239,-240	0.002	U	PCI/G		0	U	PCI/G		0.00
B303390	07/11/90	B3033900008	PLUTONIUM-239,-240	0.059		PCI/G		0.016		PCI/G		114.67
B303490	07/12/90	B3034900008	PLUTONIUM-239,-240	0.003		PCI/G	V	0.013		PCI/G	V	125.00
B303590	07/12/90	B3035900009	PLUTONIUM-239,-240	0.461		PCI/G	V	0.066		PCI/G	V	149.91
B303690	07/13/90	B3036900006	PLUTONIUM-239,-240	0.053		PCI/G	V	0.166		PCI/G	V	103.20

Number achieving RPD criteria* per number of duplicate pairs: 13/43 Percent achieving criteria*: 30.233

GROSS ALPHA												
36691	10/10/91	BH00544EBU1, BH00543EBU1	GROSS ALPHA	18.24		PCI/G	A	15.5		PCI/G	A	16.24

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
36791	10/09/91	BH00600EBU1, BH00499EBU1	GROSS ALPHA	14.85	PCI/G	A	8.778	PCI/G	A	51.40
B300190	02/02/90	B3001900006	GROSS ALPHA	22.2	PCI/G		0.0	PCI/G	V	200.00
B301790	03/20/90	B3017900408	GROSS ALPHA	35.6	PCI/G		37.2	PCI/G		4.40
B301990	03/21/90	B3019900006	GROSS ALPHA	28.2	PCI/G		28.0	PCI/G		0.71
			Number achieving RPD criteria* per number of duplicate pairs: 3/5				Percent achieving criteria*: 60.000			
GROSS ALPHA										
30591	08/14/91	BH00049EBU1, BH00047EBU1	GROSS ALPHA	10.64	PCI/G	A	11.66	PCI/G	A	9.15
30691	08/15/91	BH00056EBU1, BH00055EBU1	GROSS ALPHA	9.724	PCI/G	A	8.266	PCI/G	A	16.21
30791	08/16/91	BH00064EBU1, BH00063EBU1	GROSS ALPHA	28.4	PCI/G	A	40.4	PCI/G	A	34.88
30891	08/19/91	BH00073EBU1, BH00070EBU1	GROSS ALPHA	22.7	PCI/G	A	29.0	PCI/G	A	24.37
31091	08/20/91	BH00085EBU1, BH00084EBU1	GROSS ALPHA	42.1	PCI/G	A	33.1	PCI/G	A	23.94
31291	08/21/91	BH00094EBU1, BH00091EBU1	GROSS ALPHA	27.1	PCI/G	V	25.5	PCI/G	V	6.08
31591	08/23/91	BH00106EBU1, BH00103EBU1	GROSS ALPHA	117.8	PCI/G	V	22.6	PCI/G	V	135.61
31691	08/26/91	BH00113EBU1, BH00112EBU1	GROSS ALPHA	30.4	PCI/G	V	125.7	PCI/G	V	122.10
31891	08/27/91	BH00125EBU1, BH00122EBU1	GROSS ALPHA	39.4	PCI/G	V	34.3	PCI/G	V	13.84
31991	08/28/91	BH00140EBU1, BH00137EBU1	GROSS ALPHA	38.5	PCI/G	V	26.6	PCI/G	V	36.56
32491	09/04/91	BH00240EBU1, BH00239EBU1	GROSS ALPHA	28.7	PCI/G	V	27.8	PCI/G	V	3.19
32691	09/05/91	BH00250EBU1, BH00249EBU1	GROSS ALPHA	23.1	PCI/G	V	25.2	PCI/G	V	8.70
32891	09/06/91	BH00258EBU1, BH00257EBU1	GROSS ALPHA	32.2	PCI/G	V	31.6	PCI/G	V	1.88
32991	09/06/91	BH00265EBU1, BH00264EBU1	GROSS ALPHA	33.9	PCI/G	V	29.1	PCI/G	V	15.24
33191	09/09/91	BH00275EBU1, BH00274EBU1	GROSS ALPHA	46.5	PCI/G	V	53.1	PCI/G	V	13.25
33291	09/10/91	BH00289EBU1, BH00288EBU1	GROSS ALPHA	31.5	PCI/G	V	27.4	PCI/G	V	13.92
33591	09/11/91	BH00295EBU1, BH00294EBU1	GROSS ALPHA	49.6	PCI/G	V	42.8	PCI/G	V	14.72
33791	09/12/91	BH00356EBU1, BH00355EBU1	GROSS ALPHA	31.6	PCI/G	V	37.7	PCI/G	V	17.60
33991	09/13/91	BH00365EBU1, BH00364EBU1	GROSS ALPHA	33.8	PCI/G	V	29.8	PCI/G	V	12.58
34091	09/16/91	BH00372EBU1, BH00371EBU1	GROSS ALPHA	47.3	PCI/G	V	7.7	PCI/G	V	144.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	GROSS ALPHA	45.3	PCI/G	V	47.1	PCI/G	V	3.90
34491	09/17/91	BH00386EBU1, BH00385EBU1	GROSS ALPHA	14.88	PCI/G		10.16	PCI/G		37.70
34691	09/18/91	BH00392EBU1, BH00391EBU1	GROSS ALPHA	21.42	PCI/G		17.77	PCI/G		18.63
34891	09/19/91	BH00405EBU1, BH00403EBU1	GROSS ALPHA	9.934	PCI/G		12.84	PCI/G		25.52
34991	09/20/91	BH00414EBU1, BH00413EBU1	GROSS ALPHA	13.29	PCI/G		16.16	PCI/G		19.49
35291	09/24/91	BH00423EBU1, BH00422EBU1	GROSS ALPHA	10.48	PCI/G		13.19	PCI/G		22.90
35391	09/24/91	BH00345EBU1, BH00344EBU1	GROSS ALPHA	15.8	PCI/G		11.82	PCI/G		28.82
35491	09/24/91	BH00432EBU1, BH00431EBU1	GROSS ALPHA	14.37	PCI/G		12.27	PCI/G		15.77
35591	09/26/91	BH00437EBU1, BH00436EBU1	GROSS ALPHA	10.73	PCI/G		9.72	PCI/G		9.88
35791	09/27/91	BH00442EBU1, BH00441EBU1	GROSS ALPHA	15.87	PCI/G		13.06	PCI/G		19.43
35891	10/01/91	BH00451EBU1, BH00450EBU1	GROSS ALPHA	15.34	PCI/G		12.18	PCI/G		22.97
36091	10/02/91	BH00459EBU1, BH00458EBU1	GROSS ALPHA	18.13	PCI/G		16.58	PCI/G		8.93
36291	10/03/91	BH00471EBU1, BH00470EBU1	GROSS ALPHA	11.45	PCI/G		12.98	PCI/G		12.53
36391	10/04/91	BH00524EBU1, BH00523EBU1	GROSS ALPHA	11.13	PCI/G		14.77	PCI/G		28.11
36491	10/04/91	BH00478EBU1, BH00477EBU1	GROSS ALPHA	15.02	PCI/G		13.33	PCI/G		11.92
36591	10/07/91	BH00489EBU1, BH00488EBU1	GROSS ALPHA	12.77	PCI/G	A	8.196	PCI/G	A	43.63
36891	10/10/91	BH00610EBU1, BH00609EBU1	GROSS ALPHA	5.571	PCI/G	A	4.094	PCI/G	A	30.56
37091	10/14/91	BH00625EBU1, BH00624EBU1	GROSS ALPHA	53.5	PCI/G		22	PCI/G		83.44
37191	10/14/91	BH00561EBU1, BH00560EBU1	GROSS ALPHA	27.1	PCI/G		36.7	PCI/G		30.09
37291	10/15/91	BH00634EBU1, BH00632EBU1	GROSS ALPHA	20.4	PCI/G		40.3	PCI/G		65.57
37391	10/16/91	BH00651EBU1, BH00650EBU1	GROSS ALPHA	28.7	PCI/G		53.4	PCI/G		60.17

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
37491	10/16/91	BH00577EBU1, BH00576EBU1	GROSS ALPHA	20.4	PCI/G		22	PCI/G		7.55
B303490	07/12/90	B3034900008	GROSS ALPHA	22.1	PCI/G	V	30.4	PCI/G	V	31.62
B303590	07/12/90	B3035900009	GROSS ALPHA	38.8	PCI/G	V	49.0	PCI/G	V	23.23
B303690	07/13/90	B3036900006	GROSS ALPHA	45.8	PCI/G	V	35.3	PCI/G	V	25.89
			Number achieving RPD criteria* per number of duplicate pairs: 38/45				Percent achieving criteria*: 84.444			
GROSS BETA										
36691	10/10/91	BH00544EBU1, BH00543EBU1	GROSS BETA	27.65	PCI/G	A	28.03	PCI/G	A	1.36
36791	10/09/91	BH00600EBU1, BH00499EBU1	GROSS BETA	28.21	PCI/G	A	24.73	PCI/G	A	13.15
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
GROSS BETA										
30591	08/14/91	BH00049EBU1, BH00047EBU1	GROSS BETA	20.16	PCI/G	A	21.19	PCI/G	A	4.98
30691	08/15/91	BH00056EBU1, BH00055EBU1	GROSS BETA	24.49	PCI/G	A	30.7	PCI/G	A	22.50
30791	08/16/91	BH00064EBU1, BH00063EBU1	GROSS BETA	31.1	PCI/G	A	54.1	PCI/G	A	53.99
30891	08/19/91	BH00073EBU1, BH00070EBU1	GROSS BETA	23.9	PCI/G	A	32.3	PCI/G	A	29.89
31091	08/20/91	BH00085EBU1, BH00084EBU1	GROSS BETA	51.7	PCI/G	A	39.5	PCI/G	A	26.75
31291	08/21/91	BH00094EBU1, BH00091EBU1	GROSS BETA	21.8	PCI/G	V	16.6	PCI/G	V	27.08
31591	08/23/91	BH00106EBU1, BH00103EBU1	GROSS BETA	10.7	PCI/G	V	21.3	PCI/G	V	66.25
31691	08/26/91	BH00113EBU1, BH00112EBU1	GROSS BETA	33.9	PCI/G	V	22.1	PCI/G	V	42.14
31891	08/27/91	BH00125EBU1, BH00122EBU1	GROSS BETA	35.4	PCI/G	V	23.2	PCI/G	V	41.64
31991	08/28/91	BH00140EBU1, BH00137EBU1	GROSS BETA	31.4	PCI/G	V	25.1	PCI/G	V	22.30
32491	09/04/91	BH00240EBU1, BH00239EBU1	GROSS BETA	28.2	PCI/G	V	25.3	PCI/G	V	10.84
32691	09/05/91	BH00250EBU1, BH00249EBU1	GROSS BETA	19.6	PCI/G	V	31.6	PCI/G	V	46.88
32891	09/06/91	BH00258EBU1, BH00257EBU1	GROSS BETA	57.4	PCI/G	V	25.0	PCI/G	V	78.64
32991	09/06/91	BH00265EBU1, BH00264EBU1	GROSS BETA	28.2	PCI/G	V	35.0	PCI/G	V	21.52
33191	09/09/91	BH00275EBU1, BH00274EBU1	GROSS BETA	33.9	PCI/G	V	41.7	PCI/G	V	20.63
33291	09/10/91	BH00289EBU1, BH00288EBU1	GROSS BETA	22.4	PCI/G	V	28.0	PCI/G	V	22.22
33591	09/11/91	BH00295EBU1, BH00294EBU1	GROSS BETA	35.4	PCI/G	V	29.8	PCI/G	V	17.18
33791	09/12/91	BH00356EBU1, BH00355EBU1	GROSS BETA	47.7	PCI/G	V	33.4	PCI/G	V	35.27
33991	09/13/91	BH00365EBU1, BH00364EBU1	GROSS BETA	22.3	PCI/G	V	22.9	PCI/G	V	2.65
34091	09/16/91	BH00372EBU1, BH00371EBU1	GROSS BETA	31.5	PCI/G	V	22.0	PCI/G	V	35.51
34291	09/16/91	BH00380EBU1, BH00379EBU1	GROSS BETA	36.6	PCI/G	V	42.2	PCI/G	V	14.21
34491	09/17/91	BH00386EBU1, BH00385EBU1	GROSS BETA	21.98	PCI/G		21.33	PCI/G		3.00
34691	09/18/91	BH00392EBU1, BH00391EBU1	GROSS BETA	28	PCI/G		29.42	PCI/G		4.95
34891	09/19/91	BH00405EBU1, BH00403EBU1	GROSS BETA	27.57	PCI/G		28.78	PCI/G		4.29
34991	09/20/91	BH00414EBU1, BH00413EBU1	GROSS BETA	24.97	PCI/G		30.63	PCI/G		20.36
35291	09/24/91	BH00423EBU1, BH00422EBU1	GROSS BETA	26.08	PCI/G		27.56	PCI/G		5.52
35391	09/24/91	BH00345EBU1, BH00344EBU1	GROSS BETA	25.65	PCI/G		29.42	PCI/G		13.69
35491	09/24/91	BH00432EBU1, BH00431EBU1	GROSS BETA	22.25	PCI/G		23	PCI/G		3.31
35591	09/26/91	BH00437EBU1, BH00436EBU1	GROSS BETA	17.26	PCI/G		19.64	PCI/G		12.90
35791	09/27/91	BH00442EBU1, BH00441EBU1	GROSS BETA	28.56	PCI/G		28.23	PCI/G		1.16
35891	10/01/91	BH00451EBU1, BH00450EBU1	GROSS BETA	25.09	PCI/G		25.92	PCI/G		3.25
36091	10/02/91	BH00459EBU1, BH00458EBU1	GROSS BETA	34.22	PCI/G		29.88	PCI/G		13.54
36291	10/03/91	BH00471EBU1, BH00470EBU1	GROSS BETA	21.6	PCI/G		22.67	PCI/G		4.83
36391	10/04/91	BH00524EBU1, BH00523EBU1	GROSS BETA	24.31	PCI/G		27.03	PCI/G		10.60
36491	10/04/91	BH00478EBU1, BH00477EBU1	GROSS BETA	31.76	PCI/G		27.48	PCI/G		14.45
36591	10/07/91	BH00489EBU1, BH00488EBU1	GROSS BETA	21.27	PCI/G	A	21.5	PCI/G	A	1.08

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
36891	10/10/91	BH00610EBU1, BH00609EBU1	GROSS BETA	24.89		PCI/G	A	20.52		PCI/G	A	19.25
37091	10/14/91	BH00625EBU1, BH00624EBU1	GROSS BETA	16.69		PCI/G		19.63		PCI/G		16.19
37191	10/14/91	BH00561EBU1, BH00560EBU1	GROSS BETA	19.11		PCI/G		24.03		PCI/G		22.81
37291	10/15/91	BH00634EBU1, BH00632EBU1	GROSS BETA	16.83		PCI/G		15.81		PCI/G		6.25
37391	10/16/91	BH00651EBU1, BH00650EBU1	GROSS BETA	18.44		PCI/G		26.81		PCI/G		36.99
37491	10/16/91	BH00577EBU1, BH00576EBU1	GROSS BETA	17.94		PCI/G		27.77		PCI/G		43.01
B303490	07/12/90	B3034900008	GROSS BETA	26.7		PCI/G	A	18.6		PCI/G	A	35.76
B303590	07/12/90	B3035900009	GROSS BETA	39.9		PCI/G	A	31.0		PCI/G	A	25.11
B303690	07/13/90	B3036900006	GROSS BETA	39.6		PCI/G	A	44.9		PCI/G	A	12.54
			Number achieving RPD criteria* per number of duplicate pairs: 38/45					Percent achieving criteria*: 84.444				
TRITIUM												
30591	08/14/91	BH00049EBU1, BH00047EBU1	TRITIUM	-94.6	J	PCI/L	V	20.26	J	PCI/L	V	309.01
30691	08/15/91	BH00056EBU1, BH00055EBU1	TRITIUM	-3.86	J	PCI/L	V	-34.7	J	PCI/L	V	159.96
30791	08/16/91	BH00064EBU1, BH00063EBU1	TRITIUM	100		PCI/L	V	260		PCI/L	V	88.89
30891	08/19/91	BH00073EBU1, BH00070EBU1	TRITIUM	80		PCI/L	V	280		PCI/L	V	111.11
31091	08/20/91	BH00085EBU1, BH00084EBU1	TRITIUM	230		PCI/L	V	420		PCI/L	V	58.46
31291	08/21/91	BH00094EBU1, BH00091EBU1	TRITIUM	-60		PCI/L	V	60		PCI/L	V	******
31591	08/23/91	BH00106EBU1, BH00103EBU1	TRITIUM	160		PCI/L		180		PCI/L		11.76
31691	08/26/91	BH00113EBU1, BH00112EBU1	TRITIUM	10		PCI/L		110		PCI/L		166.67
31891	08/27/91	BH00125EBU1, BH00122EBU1	TRITIUM	210		PCI/L	V	200		PCI/L	V	4.88
31991	08/28/91	BH00140EBU1, BH00137EBU1	TRITIUM	610		PCI/L		120		PCI/L		134.25
32691	09/05/91	BH00250EBU1, BH00249EBU1	TRITIUM	220		PCI/L	V	490		PCI/L	V	76.06
32891	09/06/91	BH00258EBU1, BH00257EBU1	TRITIUM	540		PCI/L	V	600		PCI/L	V	10.53
32991	09/06/91	BH00265EBU1, BH00264EBU1	TRITIUM	640		PCI/L	V	310		PCI/L	V	69.47
33191	09/09/91	BH00275EBU1, BH00274EBU1	TRITIUM	190		PCI/L	V	170		PCI/L	V	11.11
33291	09/10/91	BH00289EBU1, BH00288EBU1	TRITIUM	180		PCI/L	V	310		PCI/L	V	53.06
33791	09/12/91	BH00356EBU1, BH00355EBU1	TRITIUM	210		PCI/L	V	260		PCI/L	V	21.28
34291	09/16/91	BH00380EBU1, BH00379EBU1	TRITIUM	280		PCI/L	A	50		PCI/L	A	139.39
34491	09/17/91	BH00386EBU1, BH00385EBU1	TRITIUM	154.1	J	PCI/L	V	125.2	J	PCI/L	V	20.69
34691	09/18/91	BH00392EBU1, BH00391EBU1	TRITIUM	39.46	J	PCI/L	V	73.15	J	PCI/L	V	59.83
34891	09/19/91	BH00405EBU1, BH00403EBU1	TRITIUM	55.82	J	PCI/L	V	168.4	J	PCI/L	V	100.42
34991	09/20/91	BH00414EBU1, BH00413EBU1	TRITIUM	134.8	J	PCI/L	V	131.9	J	PCI/L	V	2.17
35291	09/24/91	BH00423EBU1, BH00422EBU1	TRITIUM	111.6	J	PCI/L	V	141.5	J	PCI/L	V	23.63
35391	09/24/91	BH00345EBU1, BH00344EBU1	TRITIUM	124.1	J	PCI/L	V	71.16	J	PCI/L	V	54.23
35491	09/24/91	BH00432EBU1, BH00431EBU1	TRITIUM	175.1	J	PCI/L	V	113.5	J	PCI/L	V	42.69
35591	09/26/91	BH00437EBU1, BH00436EBU1	TRITIUM	118.4	J	PCI/L		161.8	J	PCI/L		30.98
35791	09/27/91	BH00442EBU1, BH00441EBU1	TRITIUM	94.36	J	PCI/L		324.5	J	PCI/L		109.89
35891	10/01/91	BH00451EBU1, BH00450EBU1	TRITIUM	12.51	J	PCI/L		87.57	J	PCI/L		150.00
36091	10/02/91	BH00459EBU1, BH00458EBU1	TRITIUM	38.47	J	PCI/L		-20.2	J	PCI/L		642.26
36291	10/03/91	BH00471EBU1, BH00470EBU1	TRITIUM	49.04	J	PCI/L		111.6	J	PCI/L		77.89
36391	10/04/91	BH00524EBU1, BH00523EBU1	TRITIUM	178.9	J	PCI/L		90.41	J	PCI/L		65.72
36491	10/04/91	BH00478EBU1, BH00477EBU1	TRITIUM	-45.2	J	PCI/L		-58.7	J	PCI/L		25.99
36591	10/07/91	BH00489EBU1, BH00488EBU1	TRITIUM	53.87	J	PCI/L		34.37	J	PCI/L		44.20
36691	10/10/91	BH00544EBU1, BH00543EBU1	TRITIUM	196.2	J	PCI/L	V	230.8	J	PCI/L	V	16.21
36791	10/09/91	BH00600EBU1, BH00499EBU1	TRITIUM	29.82	J	PCI/L	V	4.809	J	PCI/L	V	144.45
36891	10/10/91	BH00610EBU1, BH00609EBU1	TRITIUM	59.42	J	PCI/L		103.1	J	PCI/L		53.75
39591	11/20/91	BH00861EBU1, BH00860EBU1	TRITIUM	210	U	PCI/L	V	38	U	PCI/L	V	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
B301790	03/20/90	B30179004080, B3017900004	TRITIUM	160		PCI/L		10		PCI/L		176.47
B301990	03/21/90	B3019900006	TRITIUM	170		PCI/L		40		PCI/L		123.81
B303390	07/11/90	B3033900008	TRITIUM	150		PCI/L	JA	290		PCI/L	JA	63.64
B303490	07/12/90	B3034900008	TRITIUM	330		PCI/L	JA	140		PCI/L	JA	80.85
B303590	07/12/90	B3035900009	TRITIUM	280		PCI/L	JA	390		PCI/L	JA	32.84
B303690	07/13/90	B3036900006	TRITIUM	60		PCI/L	JA	150		PCI/L	JA	85.71
			Number achieving RPD criteria* per number of duplicate pairs: 13/42					Percent achieving criteria*: 30.952				
CESIUM-137												
30791	08/16/91	BH00064EBU1, BH00063EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
30891	08/19/91	BH00073EBU1, BH00070EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
31091	08/20/91	BH00085EBU1, BH00084EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
31291	08/21/91	BH00094EBU1, BH00091EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
31591	08/23/91	BH00106EBU1, BH00103EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
31691	08/26/91	BH00113EBU1, BH00112EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
31991	08/28/91	BH00140EBU1, BH00137EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
32491	09/04/91	BH00240EBU1, BH00239EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
32691	09/05/91	BH00250EBU1, BH00249EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
32891	09/06/91	BH00258EBU1, BH00257EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
32991	09/06/91	BH00265EBU1, BH00264EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
33191	09/09/91	BH00275EBU1, BH00274EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
33291	09/10/91	BH00289EBU1, BH00288EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
33591	09/11/91	BH00295EBU1, BH00294EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
33791	09/12/91	BH00356EBU1, BH00355EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
33991	09/13/91	BH00365EBU1, BH00364EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
34091	09/16/91	BH00372EBU1, BH00371EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
34491	09/17/91	BH00386EBU1, BH00385EBU1	CESIUM-137	.01847	J	PCI/G		.0009913	J	PCI/G		179.63
34691	09/18/91	BH00392EBU1, BH00391EBU1	CESIUM-137	.2186		PCI/G		.1998		PCI/G		8.99
34891	09/19/91	BH00405EBU1, BH00403EBU1	CESIUM-137	-.0406	J	PCI/G		-.0262	J	PCI/G		43.11
34991	09/20/91	BH00414EBU1, BH00413EBU1	CESIUM-137	.01418	J	PCI/G		.05568	J	PCI/G		118.81
35291	09/24/91	BH00423EBU1, BH00422EBU1	CESIUM-137	-.00849	J	PCI/G		.04663	J	PCI/G		289.04
35391	09/24/91	BH00345EBU1, BH00344EBU1	CESIUM-137	.03836	J	PCI/G		.02311	J	PCI/G		49.62
35491	09/24/91	BH00432EBU1, BH00431EBU1	CESIUM-137	-.0129	J	PCI/G		-.0326	J	PCI/G		86.59
36691	10/10/91	BH00544EBU1, BH00543EBU1	CESIUM-137	.03436	J	PCI/G	JA	-.0206	J	PCI/G	JA	798.84
36791	10/09/91	BH00600EBU1, BH00499EBU1	CESIUM-137	.04486	J	PCI/G	JA	.03034	J	PCI/G	JA	38.62
36891	10/10/91	BH00610EBU1, BH00609EBU1	CESIUM-137	.02293	J	PCI/G	JA	.01361	J	PCI/G	JA	51.01
39591	11/20/91	BH00861EBU1, BH00860EBU1	CESIUM-137	0.00		PCI/G	JA	0.00		PCI/G	JA	******
B300190	02/02/90	B3001900006	CESIUM-137	0		PCI/G	JA	0.15		PCI/G	V	200.00
B300790	02/09/90	B3007900004	CESIUM-137	0		PCI/G	JA	0		PCI/G	JA	******
B301790	03/20/90	B3017900408	CESIUM-137	0		PCI/G		0		PCI/G		******
B301990	03/21/90	B3019900006	CESIUM-137	0		PCI/G		0		PCI/G		******
B303390	07/11/90	B3033900008	CESIUM-137	0.00		PCI/G		0.00		PCI/G		******
B303490	07/12/90	B3034900008	CESIUM-137	0.00		PCI/G		0.00		PCI/G		******
B303590	07/12/90	B3035900009	CESIUM-137	0.09		PCI/G		0.00		PCI/G		200.00
B303690	07/13/90	B3036900006	CESIUM-137	0.00		PCI/G		0.18		PCI/G		200.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/36					Percent achieving criteria*: 5.556				

STRONTIUM-90

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
B300190	02/02/90	B3001900006	STRONTIUM-90	-0.09	PCI/G		0.25	PCI/G		425.00
B301790	03/20/90	B3017900408	STRONTIUM-90	0.27	PCI/G		0.15	PCI/G		57.14
B301990	03/21/90	B3019900006	STRONTIUM-90	-0.08	PCI/G		0.20	PCI/G		466.67
			Number achieving RPD criteria* per number of duplicate pairs: 0/3				Percent achieving criteria*: 0.000			
URANIUM-233,-234										
30591	08/14/91	BH00049EBU1, BH00047EBU1	URANIUM-233,-234	1.16	PCI/G	A	.8764	PCI/G	A	27.85
30691	08/15/91	BH00056EBU1, BH00055EBU1	URANIUM-233,-234	.8618	PCI/G	A	1.064	PCI/G	A	21.00
30791	08/16/91	BH00064EBU1, BH00063EBU1	URANIUM-233,-234	1.58	PCI/G		4.26	PCI/G		91.78
30891	08/19/91	BH00073EBU1, BH00070EBU1	URANIUM-233,-234	0.79	PCI/G		1.27	PCI/G		46.60
31091	08/20/91	BH00085EBU1, BH00084EBU1	URANIUM-233,-234	1.56	PCI/G		1.43	PCI/G		8.70
31291	08/21/91	BH00094EBU1, BH00091EBU1	URANIUM-233,-234	2.73	PCI/G		0.89	PCI/G		101.66
31591	08/23/91	BH00106EBU1, BH00103EBU1	URANIUM-233,-234	1.10	PCI/G		1.69	PCI/G		42.29
31691	08/26/91	BH00113EBU1, BH00112EBU1	URANIUM-233,-234	1.76	PCI/G		1.28	PCI/G		31.58
31891	08/27/91	BH00125EBU1, BH00122EBU1	URANIUM-233,-234	0.90	PCI/G	A	1.19	PCI/G	A	27.75
31991	08/28/91	BH00140EBU1, BH00137EBU1	URANIUM-233,-234	0.97	PCI/G		1.58	PCI/G		47.84
32491	09/04/91	BH00240EBU1, BH00239EBU1	URANIUM-233,-234	0.90	PCI/G	A	1.18	PCI/G	A	26.92
32691	09/05/91	BH00250EBU1, BH00249EBU1	URANIUM-233,-234	1.08	PCI/L	V	0.72	PCI/G	V	40.00
32891	09/06/91	BH00258EBU1, BH00257EBU1	URANIUM-233,-234	1.21	PCI/G	V	1.55	PCI/G	V	24.64
33191	09/09/91	BH00275EBU1, BH00274EBU1	URANIUM-233,-234	1.30	PCI/G	V	1.79	PCI/G	V	31.72
33291	09/10/91	BH00289EBU1, BH00288EBU1	URANIUM-233,-234	1.20	PCI/G	V	1.47	PCI/G	V	20.22
33591	09/11/91	BH00295EBU1, BH00294EBU1	URANIUM-233,-234	1.75	PCI/G	V	1.47	PCI/G	A	17.39
33791	09/12/91	BH00356EBU1, BH00355EBU1	URANIUM-233,-234	0.45	PCI/G	V	0.40	PCI/G	V	11.76
33991	09/13/91	BH00365EBU1, BH00364EBU1	URANIUM-233,-234	1.11	PCI/G	V	0.96	PCI/G	V	14.49
34091	09/16/91	BH00372EBU1, BH00371EBU1	URANIUM-233,-234	1.57	PCI/G	V	1.30	PCI/G	V	18.82
34291	09/16/91	BH00380EBU1, BH00379EBU1	URANIUM-233,-234	1.60	PCI/G	V	1.46	PCI/G	V	9.15
34491	09/17/91	BH00386EBU1, BH00385EBU1	URANIUM-233,-234	.9836	PCI/G	A	.8937	PCI/G	V	9.58
34691	09/18/91	BH00392EBU1, BH00391EBU1	URANIUM-233,-234	1.775	PCI/G	V	2.109	PCI/G	V	17.20
34891	09/19/91	BH00405EBU1, BH00403EBU1	URANIUM-233,-234	1.178	PCI/G	V	1.146	PCI/G	V	2.75
34991	09/20/91	BH00414EBU1, BH00413EBU1	URANIUM-233,-234	1.134	PCI/G	A	1.061	PCI/G	V	6.65
35291	09/24/91	BH00423EBU1, BH00422EBU1	URANIUM-233,-234	.9983	PCI/G	V	1.313	PCI/G	V	27.23
35391	09/24/91	BH00345EBU1, BH00344EBU1	URANIUM-233,-234	1.018	PCI/G	V	1.04	PCI/G	V	2.14
35491	09/24/91	BH00432EBU1, BH00431EBU1	URANIUM-233,-234	.9692	PCI/G	V	.8633	PCI/G	V	11.56
35591	09/26/91	BH00437EBU1, BH00436EBU1	URANIUM-233,-234	.8989	PCI/G	A	.7293	PCI/G	A	20.83
35791	09/27/91	BH00442EBU1, BH00441EBU1	URANIUM-233,-234	.8777	PCI/G	A	.7689	PCI/G	A	13.22
35891	10/01/91	BH00451EBU1, BH00450EBU1	URANIUM-233,-234	1.212	PCI/G	A	1.11	PCI/G	A	8.79
36091	10/02/91	BH00459EBU1, BH00458EBU1	URANIUM-233,-234	1.473	PCI/G	A	1.458	PCI/G	A	1.02
36291	10/03/91	BH00471EBU1, BH00470EBU1	URANIUM-233,-234	1.185	PCI/G	A	.7849	PCI/G	A	40.62
36391	10/04/91	BH00524EBU1, BH00523EBU1	URANIUM-233,-234	1.111	PCI/G	A	1.373	PCI/G	A	21.10
36491	10/04/91	BH00478EBU1, BH00477EBU1	URANIUM-233,-234	.8789	PCI/G	A	1.222	PCI/G	A	32.66
36591	10/07/91	BH00489EBU1, BH00488EBU1	URANIUM-233,-234	1.078	PCI/G	V	1.015	PCI/G	V	6.02
36891	10/10/91	BH00610EBU1, BH00609EBU1	URANIUM-233,-234	.9218	PCI/G	V	.6757	PCI/G	V	30.81
39591	11/20/91	BH00861EBU1, BH00860EBU1	URANIUM-233,-234	0.99 B	PCI/G		1.4 B	PCI/G		34.31
B303390	07/11/90	B3033900008	URANIUM-233,-234	1.02	PCI/G		1.19	PCI/G		15.38
			Number achieving RPD criteria* per number of duplicate pairs: 32/38				Percent achieving criteria*: 84.211			
STRONTIUM-89,-90										
30591	08/14/91	BH00049EBU1, BH00047EBU1	STRONTIUM-89,-90	.05321 J	PCI/G		.1036 J	PCI/G		64.27

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
30691	08/15/91	BH00056EBU1, BH00055EBU1	STRONTIUM-89,-90	.04246	J	PCI/G		.03616	J	PCI/G		16.03
30791	08/16/91	BH00064EBU1, BH00063EBU1	STRONTIUM-89,-90	0.69		PCI/G		0.60		PCI/G		13.95
30891	08/19/91	BH00073EBU1, BH00070EBU1	STRONTIUM-89,-90	0.27		PCI/G		0.37		PCI/G		31.25
31091	08/20/91	BH00085EBU1, BH00084EBU1	STRONTIUM-89,-90	0.23		PCI/G		0.25		PCI/G		8.33
31291	08/21/91	BH00094EBU1, BH00091EBU1	STRONTIUM-89,-90	0.40		PCI/G	A	0.48		PCI/G	A	18.18
31591	08/23/91	BH00106EBU1, BH00103EBU1	STRONTIUM-89,-90	0.90		PCI/G	A	0.54		PCI/G	A	50.00
31691	08/26/91	BH00113EBU1, BH00112EBU1	STRONTIUM-89,-90	0.74		PCI/G	A	0.42		PCI/G	A	55.17
31891	08/27/91	BH00125EBU1, BH00122EBU1	STRONTIUM-89,-90	0.40		PCI/G	V	0.26		PCI/G	V	42.42
31991	08/28/91	BH00140EBU1, BH00137EBU1	STRONTIUM-89,-90	0.57		PCI/G	A	0.56		PCI/G	A	1.77
32491	09/04/91	BH00240EBU1, BH00239EBU1	STRONTIUM-89,-90	.2		PCI/G	V	.2		PCI/G	V	0.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	STRONTIUM-89,-90	0.34		PCI/L		0.20		PCI/G		51.85
32891	09/06/91	BH00258EBU1, BH00257EBU1	STRONTIUM-89,-90	0.27		PCI/G		0.10		PCI/G		91.89
33191	09/09/91	BH00275EBU1, BH00274EBU1	STRONTIUM-89,-90	0.23		PCI/G	V	0.39		PCI/G	V	51.61
33291	09/10/91	BH00289EBU1, BH00288EBU1	STRONTIUM-89,-90	0.26		PCI/G	V	0.60		PCI/G	V	79.07
33591	09/11/91	BH00295EBU1, BH00294EBU1	STRONTIUM-89,-90	0.23		PCI/G	V	0.16		PCI/G	V	35.90
33791	09/12/91	BH00356EBU1, BH00355EBU1	STRONTIUM-89,-90	0.21		PCI/G	V	0.25		PCI/G	V	17.39
33991	09/13/91	BH00365EBU1, BH00364EBU1	STRONTIUM-89,-90	0.15		PCI/G	V	0.12		PCI/G	V	22.22
34091	09/16/91	BH00372EBU1, BH00371EBU1	STRONTIUM-89,-90	0.14		PCI/G	V	0.21		PCI/G	V	40.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	STRONTIUM-89,-90	0.21		PCI/G	A	0.08		PCI/G	A	89.66
34491	09/17/91	BH00386EBU1, BH00385EBU1	STRONTIUM-89,-90	.0741	J	PCI/G	A	.1655	J	PCI/G	A	76.29
34691	09/18/91	BH00392EBU1, BH00391EBU1	STRONTIUM-89,-90	.242	J	PCI/G	A	.1091	J	PCI/G	A	75.70
34891	09/19/91	BH00405EBU1, BH00403EBU1	STRONTIUM-89,-90	.0615	J	PCI/G	A	.08052	J	PCI/G	A	26.78
34991	09/20/91	BH00414EBU1, BH00413EBU1	STRONTIUM-89,-90	.0633	J	PCI/G	A	.08078	J	PCI/G	A	24.26
35291	09/24/91	BH00423EBU1, BH00422EBU1	STRONTIUM-89,-90	.06305	J	PCI/G	A	.08613	J	PCI/G	A	30.94
35391	09/24/91	BH00345EBU1, BH00344EBU1	STRONTIUM-89,-90	.04885	J	PCI/G	A	.06295	J	PCI/G	A	25.22
35491	09/24/91	BH00432EBU1, BH00431EBU1	STRONTIUM-89,-90	.08623	J	PCI/G	A	.03134	J	PCI/G	A	93.37
35591	09/26/91	BH00437EBU1, BH00436EBU1	STRONTIUM-89,-90	.04257	J	PCI/G		.05106	J	PCI/G		18.14
35791	09/27/91	BH00442EBU1, BH00441EBU1	STRONTIUM-89,-90	.05888	J	PCI/G		.06907	J	PCI/G		15.93
35891	10/01/91	BH00451EBU1, BH00450EBU1	STRONTIUM-89,-90	.03691	J	PCI/G		.06065	J	PCI/G		48.67
36091	10/02/91	BH00459EBU1, BH00458EBU1	STRONTIUM-89,-90	.3362	J	PCI/G		.44	J	PCI/G		26.75
36291	10/03/91	BH00471EBU1, BH00470EBU1	STRONTIUM-89,-90	.2953	J	PCI/G		.5617	J	PCI/G		62.17
36391	10/04/91	BH00524EBU1, BH00523EBU1	STRONTIUM-89,-90	.05338	J	PCI/G		.1118	J	PCI/G		70.73
36491	10/04/91	BH00478EBU1, BH00477EBU1	STRONTIUM-89,-90	.4257	J	PCI/G		.7115	J	PCI/G		50.26
36591	10/07/91	BH00489EBU1, BH00488EBU1	STRONTIUM-89,-90	.4116	J	PCI/G	JA	.1712	J	PCI/G	A	82.50
36691	10/10/91	BH00544EBU1, BH00543EBU1	STRONTIUM-89,-90	.06855	J	PCI/G	A	.1476	J	PCI/G	A	73.14
36791	10/09/91	BH00600EBU1, BH00499EBU1	STRONTIUM-89,-90	.1747	J	PCI/G	A	.2083	J	PCI/G	JA	17.55
36891	10/10/91	BH00610EBU1, BH00609EBU1	STRONTIUM-89,-90	.1083	J	PCI/G	JA	.113	J	PCI/G	JA	4.25
37091	10/14/91	BH00625EBU1, BH00624EBU1	STRONTIUM-89,-90	0.2229		PCI/G	A	0.015		PCI/G	A	174.78
37191	10/14/91	BH00561EBU1, BH00560EBU1	STRONTIUM-89,-90	0		PCI/G	A	0.1444		PCI/G	A	200.00
37291	10/15/91	BH00634EBU1, BH00632EBU1	STRONTIUM-89,-90	0.0371		PCI/G	A	0.1016		PCI/G	A	93.01
37391	10/16/91	BH00651EBU1, BH00650EBU1	STRONTIUM-89,-90	0.4276		PCI/G	A	0.3242		PCI/G	A	27.51
37491	10/16/91	BH00577EBU1, BH00576EBU1	STRONTIUM-89,-90	0.2177		PCI/G	A	0.1331		PCI/G	A	48.23
39591	11/20/91	BH00861EBU1, BH00860EBU1	STRONTIUM-89,-90	0.23	U	PCI/G		0.13	U	PCI/G		0.00
B303390	07/11/90	B3033900008	STRONTIUM-89,-90	0.09		PCI/G	V	0.22		PCI/G	V	83.87
B303490	07/12/90	B3034900008	STRONTIUM-89,-90	0.47		PCI/G		0.62		PCI/G		27.52
B303590	07/12/90	B3035900009	STRONTIUM-89,-90	0.37		PCI/G		0.52		PCI/G		33.71
B303690	07/13/90	B3036900006	STRONTIUM-89,-90	0.28		PCI/G		0.38		PCI/G		30.30

Number achieving RPD criteria* per number of duplicate pairs: 25/48 Percent achieving criteria*: 52.083

GROSS BETA PARTICLE ACTIVITY

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
B300190	02/02/90	B3001900006	GROSS BETA PARTICLE ACTIV	TY 25.9	PCI/G		0.2	PCI/G	V	196.93
B301790	03/20/90	B3017900408	GROSS BETA PARTICLE ACTIV	TY 42.4	PCI/G		30.2	PCI/G		33.61
B301990	03/21/90	B3019900006	GROSS BETA PARTICLE ACTIV	TY 33.0	PCI/G		30.4	PCI/G		8.20
			Number achieving RPD criteria* per number of duplicate pairs: 2/3				Percent achieving criteria*: 66.667			
RADIUM-226										
30591	08/14/91	BH00049EBU1, BH00047EBU1	RADIUM-226	1.118	PCI/G		.7275	PCI/G		42.32
30691	08/15/91	BH00056EBU1, BH00055EBU1	RADIUM-226	.8945	PCI/G		.9911	PCI/G		10.25
30791	08/16/91	BH00064EBU1, BH00063EBU1	RADIUM-226	1.04	PCI/G	A	0.94	PCI/G	A	10.10
30891	08/19/91	BH00073EBU1, BH00070EBU1	RADIUM-226	0.87	PCI/G	A	1.04	PCI/G	A	17.80
31291	08/21/91	BH00094EBU1, BH00091EBU1	RADIUM-226	0.00	PCI/G	A	1.42	PCI/G	A	200.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	RADIUM-226	0.82	PCI/G	A	0.90	PCI/G	A	9.30
31691	08/26/91	BH00113EBU1, BH00112EBU1	RADIUM-226	0.81	PCI/G	A	1.00	PCI/G	A	20.99
31991	08/28/91	BH00140EBU1, BH00137EBU1	RADIUM-226	0.94	PCI/G	A	0.97	PCI/G	A	3.14
32491	09/04/91	BH00240EBU1, BH00239EBU1	RADIUM-226	0.90	PCI/G	A	0.80	PCI/G	A	11.76
32691	09/05/91	BH00250EBU1, BH00249EBU1	RADIUM-226	0.81	PCI/G	A	0.49	PCI/G	A	49.23
32891	09/06/91	BH00258EBU1, BH00257EBU1	RADIUM-226	0.0	PCI/G	A	1.01	PCI/G	A	200.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	RADIUM-226	0.0	PCI/G	A	0.0	PCI/G	A	******
33191	09/09/91	BH00275EBU1, BH00274EBU1	RADIUM-226	1.01	PCI/G	A	1.44	PCI/G	A	35.10
33291	09/10/91	BH00289EBU1, BH00288EBU1	RADIUM-226	1.03	PCI/G	A	1.20	PCI/G	A	15.25
33591	09/11/91	BH00295EBU1, BH00294EBU1	RADIUM-226	1.44	PCI/G	A	1.34	PCI/G	A	7.19
33791	09/12/91	BH00356EBU1, BH00355EBU1	RADIUM-226	0.44	PCI/G	A	0.00	PCI/G	A	200.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	RADIUM-226	1.10	PCI/G	A	1.02	PCI/G	A	7.55
34091	09/16/91	BH00372EBU1, BH00371EBU1	RADIUM-226	1.04	PCI/G	A	1.05	PCI/G	A	0.96
34291	09/16/91	BH00380EBU1, BH00379EBU1	RADIUM-226	0.80	PCI/G	A	1.09	PCI/G	A	30.69
B300190	02/02/90	B3001900006	RADIUM-226	1.3	PCI/G	A	1.3	PCI/G	A	0.00
B300790	02/09/90	B3007900004	RADIUM-226	1.3	PCI/G	A	1.2	PCI/G	A	8.00
B301790	03/20/90	B3017900408	RADIUM-226	1.4	PCI/G		1.1	PCI/G		24.00
B301990	03/21/90	B3019900006	RADIUM-226	1.1	PCI/G		1.0	PCI/G		9.52
B303390	07/11/90	B3033900008	RADIUM-226	1.47	PCI/G		1.36	PCI/G		7.77
B303490	07/12/90	B3034900008	RADIUM-226	0.87	PCI/G		0.62	PCI/G		33.56
B303590	07/12/90	B3035900009	RADIUM-226	1.16	PCI/G		1.00	PCI/G		14.81
B303690	07/13/90	B3036900006	RADIUM-226	1.18	PCI/G		0.66	PCI/G		56.52
			Number achieving RPD criteria* per number of duplicate pairs: 20/27				Percent achieving criteria*: 74.074			
AMERICIUM-241										
30591	08/14/91	BH00049EBU1, BH00047EBU1	AMERICIUM-241	.002466 J	PCI/G	A	.005465 J	PCI/G	V	75.63
30691	08/15/91	BH00056EBU1, BH00055EBU1	AMERICIUM-241	.004064 J	PCI/G	A	.004749 J	PCI/G	V	15.55
30791	08/16/91	BH00064EBU1, BH00063EBU1	AMERICIUM-241	0.003	PCI/G		0.002	PCI/G		40.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	AMERICIUM-241	0.003	PCI/G		0.009	PCI/G		100.00
31091	08/20/91	BH00085EBU1, BH00084EBU1	AMERICIUM-241	0.004	PCI/G		0.011	PCI/G		93.33
31291	08/21/91	BH00094EBU1, BH00091EBU1	AMERICIUM-241	0.003	PCI/G	V	0.005	PCI/G	V	50.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	AMERICIUM-241	0.005	PCI/G	V	-0.002	PCI/G	V	466.67
31691	08/26/91	BH00113EBU1, BH00112EBU1	AMERICIUM-241	0.005	PCI/G	V	-0.002	PCI/G	V	466.67
31891	08/27/91	BH00125EBU1, BH00122EBU1	AMERICIUM-241	0.006	PCI/G	V	0.000	PCI/G	V	200.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	AMERICIUM-241	0.016	PCI/G	V	0.003	PCI/G	V	136.84
32491	09/04/91	BH00240EBU1, BH00239EBU1	AMERICIUM-241	0.007	PCI/G	V	0.003	PCI/G	V	80.00
32691	09/05/91	BH00250EBU1, BH00249EBU1	AMERICIUM-241	0.062	PCI/G	V	0.039	PCI/G	V	45.54

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32891	09/06/91	BH00258EBU1, BH00257EBU1	AMERICIUM-241	0.008		PCI/G	V	0.012		PCI/G	V	40.00
32991	09/06/91	BH00265EBU1, BH00264EBU1	AMERICIUM-241	0.028		PCI/G		0.058		PCI/G	V	69.77
33191	09/09/91	BH00275EBU1, BH00274EBU1	AMERICIUM-241	0.152		PCI/G	V	0.320		PCI/G	V	71.19
33291	09/10/91	BH00289EBU1, BH00288EBU1	AMERICIUM-241	0.001		PCI/G	V	0.004		PCI/G	V	120.00
33591	09/11/91	BH00295EBU1, BH00294EBU1	AMERICIUM-241	0.171		PCI/G		0.026		PCI/G		147.21
33791	09/12/91	BH00356EBU1, BH00355EBU1	AMERICIUM-241	0.002		PCI/G	V	0.008		PCI/G	V	120.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	AMERICIUM-241	0.028		PCI/G		0.010		PCI/G		94.74
34091	09/16/91	BH00372EBU1, BH00371EBU1	AMERICIUM-241	0.008		PCI/G		-0.002		PCI/G		333.33
34291	09/16/91	BH00380EBU1, BH00379EBU1	AMERICIUM-241	0.011		PCI/G	V	0.022		PCI/G	V	66.67
34491	09/17/91	BH00386EBU1, BH00385EBU1	AMERICIUM-241	.0024	J	PCI/G	V	.002239	J	PCI/G	V	6.94
34691	09/18/91	BH00392EBU1, BH00391EBU1	AMERICIUM-241	.1659	J	PCI/G	V	.1718	J	PCI/G	V	3.49
34891	09/19/91	BH00405EBU1, BH00403EBU1	AMERICIUM-241	.01461	J	PCI/G	V	.01976	J	PCI/G	V	29.97
34991	09/20/91	BH00414EBU1, BH00413EBU1	AMERICIUM-241	.002697	J	PCI/G	V	.004972	J	PCI/G	V	59.33
35291	09/24/91	BH00423EBU1, BH00422EBU1	AMERICIUM-241	.007614	J	PCI/G	V	.005109	J	PCI/G	V	39.38
35391	09/24/91	BH00345EBU1, BH00344EBU1	AMERICIUM-241	.008104	J	PCI/G	V	.002549	J	PCI/G	V	104.29
35491	09/24/91	BH00432EBU1, BH00431EBU1	AMERICIUM-241	.003938	J	PCI/G	V	.001316	J	PCI/G	V	99.81
35591	09/26/91	BH00437EBU1, BH00436EBU1	AMERICIUM-241	.02158		PCI/G	A	.01554	J	PCI/G	A	32.54
35791	09/27/91	BH00442EBU1, BH00441EBU1	AMERICIUM-241	.08168		PCI/G	A	.0528		PCI/G	A	42.95
35891	10/01/91	BH00451EBU1, BH00450EBU1	AMERICIUM-241	.002751	J	PCI/G	A	.003997	J	PCI/G	A	36.93
36091	10/02/91	BH00459EBU1, BH00458EBU1	AMERICIUM-241	2.008		PCI/G	A	3.195		PCI/G	A	45.63
36291	10/03/91	BH00471EBU1, BH00470EBU1	AMERICIUM-241	.03233		PCI/G	A	.001252	J	PCI/G	A	185.09
36391	10/04/91	BH00524EBU1, BH00523EBU1	AMERICIUM-241	.03068		PCI/G	A	.04607		PCI/G	A	40.10
36491	10/04/91	BH00478EBU1, BH00477EBU1	AMERICIUM-241	.00232	J	PCI/G	A	.002932	J	PCI/G	A	23.31
39591	11/20/91	BH00861EBU1, BH00860EBU1	AMERICIUM-241	-0.007	U	PCI/G		0.009	U	PCI/G		0.00
B300190	02/02/90	B3001900006	AMERICIUM-241	0.010		PCI/G		0.007		PCI/G	A	35.29
B301790	03/20/90	B3017900408	AMERICIUM-241	0.010		PCI/G		0.012		PCI/G		18.18
B301990	03/21/90	B3019900006	AMERICIUM-241	0.011		PCI/G		0.011		PCI/G		0.00
B303390	07/11/90	B3033900008	AMERICIUM-241	0.020		PCI/G		0.014		PCI/G		35.29
B303490	07/12/90	B3034900008	AMERICIUM-241	-0.012		PCI/G	A	0.011		PCI/G	A	4600.0
			Number achieving RPD criteria* per number of duplicate pairs: 15/41					Percent achieving criteria*: 36.585				
PLUTONIUM-239												
B300190	02/02/90	B3001900006	PLUTONIUM-239	0.022		PCI/G		0.054		PCI/G		84.21
B301790	03/20/90	B3017900408	PLUTONIUM-239	0.011		PCI/G		0.012		PCI/G		8.70
			Number achieving RPD criteria* per number of duplicate pairs: 1/2					Percent achieving criteria*: 50.000				
URANIUM-235												
30591	08/14/91	BH00049EBU1, BH00047EBU1	URANIUM-235	.02155	J	PCI/G	A	.03852	J	PCI/G	A	56.50
30691	08/15/91	BH00056EBU1, BH00055EBU1	URANIUM-235	.04809	J	PCI/G	A	.01579	J	PCI/G	A	101.13
30791	08/16/91	BH00064EBU1, BH00063EBU1	URANIUM-235	0.05		PCI/G		0.45		PCI/G		160.00
30891	08/19/91	BH00073EBU1, BH00070EBU1	URANIUM-235	0.03		PCI/G		0.04		PCI/G		28.57
31091	08/20/91	BH00085EBU1, BH00084EBU1	URANIUM-235	0.01		PCI/G		0.11		PCI/G		166.67
31291	08/21/91	BH00094EBU1, BH00091EBU1	URANIUM-235	0.13		PCI/G		0.07		PCI/G		60.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	URANIUM-235	0.15		PCI/G		0.41		PCI/G		92.86
31691	08/26/91	BH00113EBU1, BH00112EBU1	URANIUM-235	0.17		PCI/G		0.08		PCI/G		72.00
31891	08/27/91	BH00125EBU1, BH00122EBU1	URANIUM-235	0.04		PCI/G	A	0.04		PCI/G	A	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	URANIUM-235	0.07		PCI/G		0.17		PCI/G		83.33
32491	09/04/91	BH00240EBU1, BH00239EBU1	URANIUM-235	0.00		PCI/G	A	0.04		PCI/G	A	200.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
32691	09/05/91	BH00250EBU1, BH00249EBU1	URANIUM-235	0.04		PCI/G	V	0.08		PCI/G	V	66.67
32891	09/06/91	BH00258EBU1, BH00257EBU1	URANIUM-235	0.04		PCI/G	V	0.07		PCI/G	V	54.55
33191	09/09/91	BH00275EBU1, BH00274EBU1	URANIUM-235	0.07		PCI/G	V	0.11		PCI/G	V	44.44
33291	09/10/91	BH00289EBU1, BH00288EBU1	URANIUM-235	0.03		PCI/G	V	0.06		PCI/G	V	66.67
33591	09/11/91	BH00295EBU1, BH00294EBU1	URANIUM-235	0.07		PCI/G	V	0.03		PCI/G	A	80.00
33791	09/12/91	BH00356EBU1, BH00355EBU1	URANIUM-235	0.00		PCI/G	V	0.03		PCI/G	V	200.00
33991	09/13/91	BH00365EBU1, BH00364EBU1	URANIUM-235	0.07		PCI/G	V	0.04		PCI/G	V	54.55
34091	09/16/91	BH00372EBU1, BH00371EBU1	URANIUM-235	0.07		PCI/G	V	0.07		PCI/G	V	0.00
34291	09/16/91	BH00380EBU1, BH00379EBU1	URANIUM-235	0.11		PCI/G	V	0.07		PCI/G	V	44.44
34491	09/17/91	BH00386EBU1, BH00385EBU1	URANIUM-235	.0575	J	PCI/G	A	.05307	J	PCI/G	V	8.01
34691	09/18/91	BH00392EBU1, BH00391EBU1	URANIUM-235	.07395	J	PCI/G	V	.09604	J	PCI/G	V	25.99
34891	09/19/91	BH00405EBU1, BH00403EBU1	URANIUM-235	.04016	J	PCI/G	V	.04051	J	PCI/G	V	0.87
34991	09/20/91	BH00414EBU1, BH00413EBU1	URANIUM-235	.0261	J	PCI/G	A	.06734	J	PCI/G	V	88.27
35291	09/24/91	BH00423EBU1, BH00422EBU1	URANIUM-235	.05799	J	PCI/G	V	.05723	J	PCI/G	V	1.32
35391	09/24/91	BH00345EBU1, BH00344EBU1	URANIUM-235	.04723	J	PCI/G	V	.08379	J	PCI/G	V	55.81
35491	09/24/91	BH00432EBU1, BH00431EBU1	URANIUM-235	.03641	J	PCI/G	V	0	J	PCI/G	V	200.00
35591	09/26/91	BH00437EBU1, BH00436EBU1	URANIUM-235	.06143	J	PCI/G	A	.04965	J	PCI/G	A	21.21
35791	09/27/91	BH00442EBU1, BH00441EBU1	URANIUM-235	.03009	J	PCI/G	A	.04523	J	PCI/G	A	40.20
35891	10/01/91	BH00451EBU1, BH00450EBU1	URANIUM-235	.02773	J	PCI/G	A	.03931	J	PCI/G	A	34.55
36091	10/02/91	BH00459EBU1, BH00458EBU1	URANIUM-235	.1133	J	PCI/G	A	-.00406	J	PCI/G	A	214.87
36291	10/03/91	BH00471EBU1, BH00470EBU1	URANIUM-235	.05473	J	PCI/G	A	.01427	J	PCI/G	A	117.28
36391	10/04/91	BH00524EBU1, BH00523EBU1	URANIUM-235	.02987	J	PCI/G	A	.06907	J	PCI/G	A	79.24
36491	10/04/91	BH00478EBU1, BH00477EBU1	URANIUM-235	.08176	J	PCI/G	A	.02828	J	PCI/G	A	97.20
36591	10/07/91	BH00489EBU1, BH00488EBU1	URANIUM-235	.02231	J	PCI/G	V	.06461	J	PCI/G	V	97.33
36891	10/10/91	BH00610EBU1, BH00609EBU1	URANIUM-235	.02881	J	PCI/G	V	.0104	J	PCI/G	V	93.90
39591	11/20/91	BH00861EBU1, BH00860EBU1	URANIUM-235	0.071	J	PCI/G		0.087	J	PCI/G		20.25
B303390	07/11/90	B3033900008	URANIUM-235	0.09		PCI/G		0.11		PCI/G		20.00

Number achieving RPD criteria* per number of duplicate pairs: 11/38 Percent achieving criteria*: 28.947

RADIUM-228												
30591	08/14/91	BH00049EBU1, BH00047EBU1	RADIUM-228	2.076		PCI/G		1.578		PCI/G		27.26
30691	08/15/91	BH00056EBU1, BH00055EBU1	RADIUM-228	1.209		PCI/G		1.538		PCI/G		23.95
30791	08/16/91	BH00064EBU1, BH00063EBU1	RADIUM-228	1.27		PCI/G	A	1.44		PCI/G	A	12.55
30891	08/19/91	BH00073EBU1, BH00070EBU1	RADIUM-228	1.41		PCI/G	A	0.96		PCI/G	A	37.97
31091	08/20/91	BH00085EBU1, BH00084EBU1	RADIUM-228	2.15		PCI/G	A	2.79		PCI/G	A	25.91
31291	08/21/91	BH00094EBU1, BH00091EBU1	RADIUM-228	0.89		PCI/G	A	0.00		PCI/G	A	200.00
31591	08/23/91	BH00106EBU1, BH00103EBU1	RADIUM-228	0.00		PCI/G	A	0.00		PCI/G	A	******
31691	08/26/91	BH00113EBU1, BH00112EBU1	RADIUM-228	1.55		PCI/G	A	1.55		PCI/G	A	0.00
31991	08/28/91	BH00140EBU1, BH00137EBU1	RADIUM-228	1.27		PCI/G	A	1.13		PCI/G	A	11.67
32491	09/04/91	BH00240EBU1, BH00239EBU1	RADIUM-228	1.85		PCI/G	A	1.31		PCI/G	A	34.18
32691	09/05/91	BH00250EBU1, BH00249EBU1	RADIUM-228	1.36		PCI/G	A	0.97		PCI/G	A	33.48
32891	09/06/91	BH00258EBU1, BH00257EBU1	RADIUM-228	1.41		PCI/G	A	1.44		PCI/G	A	2.11
32991	09/06/91	BH00265EBU1, BH00264EBU1	RADIUM-228	1.71		PCI/G	A	1.19		PCI/G	A	35.86
33191	09/09/91	BH00275EBU1, BH00274EBU1	RADIUM-228	1.65		PCI/G	A	1.41		PCI/G	A	15.69
33291	09/10/91	BH00289EBU1, BH00288EBU1	RADIUM-228	1.84		PCI/G	A	1.81		PCI/G	A	1.64
33591	09/11/91	BH00295EBU1, BH00294EBU1	RADIUM-228	2.03		PCI/G	A	2.36		PCI/G	A	15.03
33791	09/12/91	BH00356EBU1, BH00355EBU1	RADIUM-228	0.53		PCI/G	A	0.49		PCI/G	A	7.84
33991	09/13/91	BH00365EBU1, BH00364EBU1	RADIUM-228	1.29		PCI/G	A	1.35		PCI/G	A	4.55

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
34091	09/16/91	BH00372EBU1, BH00371EBU1	RADIUM-228	2.53	PCI/G	A	2.16	PCI/G	A	15.78
34291	09/16/91	BH00380EBU1, BH00379EBU1	RADIUM-228	1.78	PCI/G	A	2.21	PCI/G	A	21.55
34491	09/17/91	BH00386EBU1, BH00385EBU1	RADIUM-228	1.889	PCI/G		1.586	PCI/G		17.44
34691	09/18/91	BH00392EBU1, BH00391EBU1	RADIUM-228	2.145	PCI/G		2.784	PCI/G		25.93
34891	09/19/91	BH00405EBU1, BH00403EBU1	RADIUM-228	2.892	PCI/G		2.52	PCI/G		13.75
34991	09/20/91	BH00414EBU1, BH00413EBU1	RADIUM-228	2.319	PCI/G		2.319	PCI/G		0.00
35291	09/24/91	BH00423EBU1, BH00422EBU1	RADIUM-228	2.236	PCI/G		2.466	PCI/G		9.78
35391	09/24/91	BH00345EBU1, BH00344EBU1	RADIUM-228	1.707	PCI/G		1.957	PCI/G		13.65
35491	09/24/91	BH00432EBU1, BH00431EBU1	RADIUM-228	1.74	PCI/G		1.469	PCI/G		16.89
39591	11/20/91	BH00861EBU1, BH00860EBU1	RADIUM-228	1.6	PCI/G	A	1.7	PCI/G	A	6.06
B300190	02/02/90	B3001900006	RADIUM-228	2.1	PCI/G	V	2	PCI/G	V	4.88
B300790	02/09/90	B3007900004	RADIUM-228	0.9	PCI/G	V	1.8	PCI/G	V	66.67
B301790	03/20/90	B3017900408	RADIUM-228	1.9	PCI/G		1.8	PCI/G		5.41
B301990	03/21/90	B3019900006	RADIUM-228	1.4	PCI/G		1.3	PCI/G		7.41
B303390	07/11/90	B3033900008	RADIUM-228	1.89	PCI/G		1.78	PCI/G		5.99
B303490	07/12/90	B3034900008	RADIUM-228	1.19	PCI/G		1.06	PCI/G		11.56
B303590	07/12/90	B3035900009	RADIUM-228	1.55	PCI/G		1.67	PCI/G		7.45
B303690	07/13/90	B3036900006	RADIUM-228	1.78	PCI/G		1.33	PCI/G		28.94
			Number achieving RPD criteria* per number of duplicate pairs: 33/36				Percent achieving criteria*: 91.667			
URANIUM-238										
30591	08/14/91	BH00049EBU1, BH00047EBU1	URANIUM-238	.8561	PCI/G	A	.8427	PCI/G	A	1.58
30691	08/15/91	BH00056EBU1, BH00055EBU1	URANIUM-238	.7872	PCI/G	A	1.114	PCI/G	A	34.38
30791	08/16/91	BH00064EBU1, BH00063EBU1	URANIUM-238	1.63	PCI/G		26.63	PCI/G		176.93
30891	08/19/91	BH00073EBU1, BH00070EBU1	URANIUM-238	1.11	PCI/G		1.39	PCI/G		22.40
31091	08/20/91	BH00085EBU1, BH00084EBU1	URANIUM-238	2.64	PCI/G		2.92	PCI/G		10.07
31291	08/21/91	BH00094EBU1, BH00091EBU1	URANIUM-238	6.02	PCI/G		1.06	PCI/G		140.11
31591	08/23/91	BH00106EBU1, BH00103EBU1	URANIUM-238	0.79	PCI/G		1.31	PCI/G		49.52
31691	08/26/91	BH00113EBU1, BH00112EBU1	URANIUM-238	2.68	PCI/G		0.85	PCI/G		103.68
31891	08/27/91	BH00125EBU1, BH00122EBU1	URANIUM-238	1.01	PCI/G	A	1.15	PCI/G	A	12.96
31991	08/28/91	BH00140EBU1, BH00137EBU1	URANIUM-238	1.30	PCI/G		1.32	PCI/G		1.53
32491	09/04/91	BH00240EBU1, BH00239EBU1	URANIUM-238	0.82	PCI/G	A	1.25	PCI/G	A	41.55
32691	09/05/91	BH00250EBU1, BH00249EBU1	URANIUM-238	0.99	PCI/G	V	0.87	PCI/G	V	12.90
32891	09/06/91	BH00258EBU1, BH00257EBU1	URANIUM-238	2.02	PCI/G	V	1.40	PCI/G	V	36.26
33191	09/09/91	BH00275EBU1, BH00274EBU1	URANIUM-238	1.78	PCI/G	V	2.46	PCI/G	V	32.08
33291	09/10/91	BH00289EBU1, BH00288EBU1	URANIUM-238	1.54	PCI/G	V	1.25	PCI/G	V	20.79
33591	09/11/91	BH00295EBU1, BH00294EBU1	URANIUM-238	1.74	PCI/G	V	1.68	PCI/G	A	3.51
33791	09/12/91	BH00356EBU1, BH00355EBU1	URANIUM-238	0.65	PCI/G	V	0.79	PCI/G	V	19.44
33991	09/13/91	BH00365EBU1, BH00364EBU1	URANIUM-238	0.80	PCI/G	V	1.05	PCI/G	V	27.03
34091	09/16/91	BH00372EBU1, BH00371EBU1	URANIUM-238	1.37	PCI/G	V	1.29	PCI/G	V	6.02
34291	09/16/91	BH00380EBU1, BH00379EBU1	URANIUM-238	1.72	PCI/G	V	1.61	PCI/G	V	6.61
34491	09/17/91	BH00386EBU1, BH00385EBU1	URANIUM-238	1.09	PCI/G	A	1.061	PCI/G	V	2.70
34691	09/18/91	BH00392EBU1, BH00391EBU1	URANIUM-238	1.414	PCI/G	V	1.475	PCI/G	V	4.22
34891	09/19/91	BH00405EBU1, BH00403EBU1	URANIUM-238	1.157	PCI/G	V	1.024	PCI/G	V	12.20
34991	09/20/91	BH00414EBU1, BH00413EBU1	URANIUM-238	1.113	PCI/G	A	1.441	PCI/G	V	25.69
35291	09/24/91	BH00423EBU1, BH00422EBU1	URANIUM-238	.9693	PCI/G	V	1.354	PCI/G	V	33.12
35391	09/24/91	BH00345EBU1, BH00344EBU1	URANIUM-238	.7295	PCI/G	V	1.179	PCI/G	V	47.11
35491	09/24/91	BH00432EBU1, BH00431EBU1	URANIUM-238	1.016	PCI/G	V	.9992	PCI/G	V	1.67

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G16-f

Relative Percent Difference from the Mean
OU1 Subsurface Soil Total Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
35591	09/26/91	BH00437EBU1, BH00436EBU1	URANIUM-238	1.109		PCI/G	A	.8596		PCI/G	A	25.34
35791	09/27/91	BH00442EBU1, BH00441EBU1	URANIUM-238	.9861		PCI/G	A	1.422		PCI/G	A	36.20
35891	10/01/91	BH00451EBU1, BH00450EBU1	URANIUM-238	.7487		PCI/G	A	1.126		PCI/G	A	40.25
36091	10/02/91	BH00459EBU1, BH00458EBU1	URANIUM-238	1.383		PCI/G	A	1.255		PCI/G	A	9.70
36291	10/03/91	BH00471EBU1, BH00470EBU1	URANIUM-238	.9344		PCI/G	A	.7492		PCI/G	A	22.00
36391	10/04/91	BH00524EBU1, BH00523EBU1	URANIUM-238	.9396		PCI/G	A	.9886		PCI/G	A	5.08
36491	10/04/91	BH00478EBU1, BH00477EBU1	URANIUM-238	1.182		PCI/G	A	1.301		PCI/G	A	9.59
36591	10/07/91	BH00489EBU1, BH00488EBU1	URANIUM-238	.7875		PCI/G	V	1.184		PCI/G	V	40.22
36891	10/10/91	BH00610EBU1, BH00609EBU1	URANIUM-238	.813		PCI/G	V	.3951		PCI/G	V	69.18
39591	11/20/91	BH00861EBU1, BH00860EBU1	URANIUM-238	0.94	B	PCI/G		1.2	B	PCI/G		24.30
B303390	07/11/90	B3033900008	URANIUM-238	1.44		PCI/G		1.24		PCI/G		14.93

Number achieving RPD criteria* per number of duplicate pairs: 29/38 Percent achieving criteria*: 76.316

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
GROSS ALPHA												
6986	02/12/90	G69860290001, G69860290001D	GROSS ALPHA	10.6		PCI/L		11.1		PCI/L		4.61
6986	03/06/91	GW00925IT, GW00927IT	GROSS ALPHA	11.15		PCI/L		13.09		PCI/L		16.01
6886	08/01/90	GW00187IT, GW00190IT	GROSS ALPHA	3.369		PCI/L	A	7.486		PCI/L	A	75.85
6886	05/14/91	GW01286IT, GW01289IT	GROSS ALPHA	1.457	J	PCI/L	A	.8253	J	PCI/L	A	55.36
6886	02/26/92	GW02381IT, GW02383IT	GROSS ALPHA	3.772		PCI/L		1.864	J	PCI/L		67.71
6886	05/15/92	GW02825IT, GW02827IT	GROSS ALPHA	.8564	J	PCI/L		1.351	J	PCI/L		44.81
			Number achieving RPD criteria* per number of duplicate pairs: 2/6					Percent achieving criteria*: 33.333				
GROSS BETA												
6986	03/06/91	GW00925IT, GW00927IT	GROSS BETA	1.298	J	PCI/L		1.659	J	PCI/L		24.42
6986	08/20/91	GW01692IT, GW01695IT	GROSS BETA	8.424		PCI/L	A	6.093		PCI/L	A	32.11
6886	08/01/90	GW00187IT, GW00190IT	GROSS BETA	2.972	J	PCI/L	A	2.167	J	PCI/L	A	31.33
6886	05/14/91	GW01286IT, GW01289IT	GROSS BETA	1.636	J	PCI/L	A	2.949	J	PCI/L	A	57.27
6886	11/25/91	GW02058IT, GW02060IT	GROSS BETA	2.631	J	PCI/L	A	2.253	J	PCI/L	A	15.48
6886	02/26/92	GW02381IT, GW02383IT	GROSS BETA	3.174	J	PCI/L		2.299	J	PCI/L		31.98
6886	05/15/92	GW02825IT, GW02827IT	GROSS BETA	2.52	J	PCI/L		3.161	J	PCI/L		22.57
			Number achieving RPD criteria* per number of duplicate pairs: 3/7					Percent achieving criteria*: 42.857				
CESIUM-137												
6986	02/12/90	G69860290001, G69860290001D	CESIUM-137	-0.07		PCI/L		0.41		PCI/L		282.35
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
STRONTIUM-90												
6986	02/12/90	G69860290001, G69860290001D	STRONTIUM-90	-0.14		PCI/L		-0.04		PCI/L		111.11
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
URANIUM-233,-234												
6986	02/12/90	G69860290001, G69860290001D	URANIUM-233,-234	8.02		PCI/L		6.82		PCI/L		16.17
6986	03/06/91	GW00925IT, GW00927IT	URANIUM-233,-234	9.172		PCI/L		11.73		PCI/L		24.48
6986	08/20/91	GW01692IT, GW01695IT	URANIUM-233,-234	8.753		PCI/L	A	9.987		PCI/L	A	13.17
6886	08/01/90	GW00187IT, GW00190IT	URANIUM-233,-234	.1836	J	PCI/L	V	.08913	J	PCI/L	V	69.28
6886	05/14/91	GW01286IT, GW01289IT	URANIUM-233,-234	.1923	J	PCI/L	A	.2954	J	PCI/L	A	42.28
6886	11/25/91	GW02058IT, GW02060IT	URANIUM-233,-234	.477	J	PCI/L	A	.4756	J	PCI/L	A	0.29
6886	02/26/92	GW02381IT, GW02383IT	URANIUM-233,-234	1.784		PCI/L	A	1.419		PCI/L	A	22.79
			Number achieving RPD criteria* per number of duplicate pairs: 5/7					Percent achieving criteria*: 71.429				
STRONTIUM-89,-90												
6986	03/06/91	GW00925IT, GW00927IT	STRONTIUM-89,-90	.3519	J	PCI/L	A	-.0668	J	PCI/L	A	293.72
6986	08/20/91	GW01692IT, GW01695IT	STRONTIUM-89,-90	.07713	J	PCI/L		.3231	J	PCI/L		122.91
6886	05/14/91	GW01286IT, GW01289IT	STRONTIUM-89,-90	.6404	J	PCI/L	A	.5801	J	PCI/L	A	9.88
6886	11/25/91	GW02058IT, GW02060IT	STRONTIUM-89,-90	.4618	J	PCI/L	A	.8557	J	PCI/L	A	59.80
6886	02/26/92	GW02381IT, GW02383IT	STRONTIUM-89,-90	.9367	J	PCI/L	A	.6296	J	PCI/L	A	39.21
6886	05/15/92	GW02825IT, GW02827IT	STRONTIUM-89,-90	1.044		PCI/L	A	.6232	J	PCI/L	A	50.48
			Number achieving RPD criteria* per number of duplicate pairs: 1/6					Percent achieving criteria*: 16.667				
GROSS BETA PARTICLE ACTIVITY												
6986	02/12/90	G69860290001, G69860290001D	GROSS BETA PARTICLE ACTIVITY	10.2		PCI/L		17.6		PCI/L		53.24

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-a

Relative Percent Difference from the Mean
OU1 Groundwater Filtered Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
RADIUM-226												
6986	03/06/91	GW00925IT, GW00927IT	RADIUM-226	.08469	J	PCI/L	A	.06956	J	PCI/L	A	19.62
6986	08/20/91	GW01692IT, GW01695IT	RADIUM-226	.3013	J	PCI/L		.3743	J	PCI/L		21.61
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
AMERICIUM-241												
6986	02/12/90	G69860290001, G69860290001D	AMERICIUM-241	0.006		PCI/L		0.002		PCI/L		100.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
PLUTONIUM-239												
6986	02/12/90	G69860290001, G69860290001D	PLUTONIUM-239	0.009		PCI/L		0.003		PCI/L		100.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
URANIUM-235												
6986	02/12/90	G69860290001, G69860290001D	URANIUM-235	0.55		PCI/L		0.47		PCI/L		15.69
6986	03/06/91	GW00925IT, GW00927IT	URANIUM-235	.326	J	PCI/L		.1008	J	PCI/L		105.53
6986	08/20/91	GW01692IT, GW01695IT	URANIUM-235	.3706	J	PCI/L	A	.4398	J	PCI/L	A	17.08
6886	08/01/90	GW00187IT, GW00190IT	URANIUM-235	0	J	PCI/L	V	0	J	PCI/L	V	******
6886	05/14/91	GW01286IT, GW01289IT	URANIUM-235	-.00836	J	PCI/L	A	.1198	J	PCI/L	A	230.01
6886	11/25/91	GW02058IT, GW02060IT	URANIUM-235	-.00776	J	PCI/L	A	.05429	J	PCI/L	A	266.71
6886	02/26/92	GW02381IT, GW02383IT	URANIUM-235	.09199	J	PCI/L	A	-.00378	J	PCI/L	A	217.14
			Number achieving RPD criteria* per number of duplicate pairs: 2/7					Percent achieving criteria*: 28.571				
URANIUM-238												
6986	02/12/90	G69860290001, G69860290001D	URANIUM-238	5.63		PCI/L		6.62		PCI/L		16.16
6986	03/06/91	GW00925IT, GW00927IT	URANIUM-238	6.829		PCI/L		8.162		PCI/L		17.78
6986	08/20/91	GW01692IT, GW01695IT	URANIUM-238	7.281		PCI/L	A	7.16		PCI/L	A	1.68
6886	08/01/90	GW00187IT, GW00190IT	URANIUM-238	.306	J	PCI/L	V	.2546	J	PCI/L	V	18.34
6886	05/14/91	GW01286IT, GW01289IT	URANIUM-238	.1505	J	PCI/L	A	.03194	J	PCI/L	A	129.97
6886	11/25/91	GW02058IT, GW02060IT	URANIUM-238	.3684	J	PCI/L	A	.4887	J	PCI/L	A	28.07
6886	02/26/92	GW02381IT, GW02383IT	URANIUM-238	1.046		PCI/L	A	1.218		PCI/L	A	15.19
			Number achieving RPD criteria* per number of duplicate pairs: 6/7					Percent achieving criteria*: 85.714				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
GROSS ALPHA												
SW034	11/07/90	SW00506WC, SW80065WC	GROSS ALPHA	1.60	U	PCI/L	V	0.32	U	PCI/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	GROSS ALPHA	2.000	U	PCI/L	V	1.000	U	PCI/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	GROSS ALPHA	.70	U	PCI/L	A	.48	U	PCI/L	A	0.00
SW035	04/08/91	SW01025WC, SW80109WC	GROSS ALPHA	6.000		PCI/L	A	6.500		PCI/L	A	8.00
SW035	05/14/91	SW01132WC, SW80123WC	GROSS ALPHA	7.200		PCI/L	V	.3900		PCI/L	V	179.45
SW038	12/11/90	SW00624WC, SW80081WC	GROSS ALPHA	2.500		PCI/L	V	0.7	U	PCI/L	V	112.50
SW068	12/10/90	SW00621WC, SW80079WC	GROSS ALPHA	4.400		PCI/L	V	3.700		PCI/L	V	17.28
SW068	03/19/91	SW00929WC, SW80095WC	GROSS ALPHA	4.300		PCI/L		2.000	U	PCI/L		73.02
			Number achieving RPD criteria* per number of duplicate pairs: 5/8					Percent achieving criteria*: 62.500				
GROSS ALPHA												
SW033	08/07/91	SW01438WC, SW80145WC	GROSS ALPHA	-.205	J	PCI/L	A	.02643	J	PCI/L	A	259.20
SW034	06/13/91	SW01230WC, SW80131WC	GROSS ALPHA	.472	J	PCI/L	A	-.269	J	PCI/L	A	730.05
SW035	07/19/90	SW00141WC, SW80016WC	GROSS ALPHA	4.233	X	PCI/L	A	2.098	X	PCI/L	A	67.45
			Number achieving RPD criteria* per number of duplicate pairs: 0/3					Percent achieving criteria*: 0.000				
GROSS BETA												
SW033	08/07/91	SW01438WC, SW80145WC	GROSS BETA	2.36	J	PCI/L	A	2.218	J	PCI/L	A	6.20
SW034	06/13/91	SW01230WC, SW80131WC	GROSS BETA	2.752	J	PCI/L	A	1.196	J	PCI/L	A	78.82
SW034	07/10/91	SW01333WC, SW80139WC	GROSS BETA	1.728	J	PCI/L	A	2.712	J	PCI/L	A	44.32
SW035	07/19/90	SW00141WC, SW80016WC	GROSS BETA	4.306	X	PCI/L	A	3.027	J	PCI/L	A	34.88
			Number achieving RPD criteria* per number of duplicate pairs: 1/4					Percent achieving criteria*: 25.000				
CESIUM-137												
SW034	08/13/90	SW00236WC, SW80029WC	CESIUM-137	-.03		PCI/L	A	.04		PCI/L	A	1400.0
SW034	11/07/90	SW00506WC, SW80065WC	CESIUM-137	.5000	U	PCI/L	JA	.8000	U	PCI/L	JA	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CESIUM-137	.8000	U	PCI/L	JA	.9000	U	PCI/L	JA	0.00
SW034	04/04/91	SW01020WC, SW80107WC	CESIUM-137	.1200		PCI/L	JA	-0.14		PCI/L	JA	2600.0
SW035	04/08/91	SW01025WC, SW80109WC	CESIUM-137	-0.16		PCI/L	JA	.0000		PCI/L	JA	200.00
SW035	05/14/91	SW01132WC, SW80123WC	CESIUM-137	.1100		PCI/L	JA	.2500		PCI/L	JA	77.78
SW038	12/11/90	SW00624WC, SW80081WC	CESIUM-137	.8000	U	PCI/L	JA	.8000	U	PCI/L	JA	0.00
SW068	12/10/90	SW00621WC, SW80079WC	CESIUM-137	.9000	U	PCI/L	JA	.7000	U	PCI/L	JA	0.00
SW068	03/19/91	SW00929WC, SW80095WC	CESIUM-137	.1000	U	PCI/L		.1300	U	PCI/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	CESIUM-137	-.02		PCI/L	JA	0		PCI/L	A	200.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/10					Percent achieving criteria*: 50.000				
STRONTIUM-90												
SW034	11/07/90	SW00506WC, SW80065WC	STRONTIUM-90	.2	U	PCI/L	V	.6	U	PCI/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	STRONTIUM-90	.8	U	PCI/L	V	0	U	PCI/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	STRONTIUM-90	.4000	U	PCI/L		.5000	U	PCI/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	STRONTIUM-90	.4000	U	PCI/L		.4000	U	PCI/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	STRONTIUM-90	.1400		PCI/L	V	.1600		PCI/L	V	13.33
SW038	12/11/90	SW00624WC, SW80081WC	STRONTIUM-90	.1	U	PCI/L	V	.2	U	PCI/L	V	0.00
SW068	12/10/90	SW00621WC, SW80079WC	STRONTIUM-90	.1	U	PCI/L	V	.1	U	PCI/L	V	0.00
SW068	03/19/91	SW00929WC, SW80095WC	STRONTIUM-90	.5000	U	PCI/L		.4000	U	PCI/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/8					Percent achieving criteria*: 100.000				

URANIUM-233,-234

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result					Duplicate Result					Rel. % Diff.
SW033	08/07/91	SW01438WC, SW80145WC	URANIUM-233,-234	0.4125	J	PCI/L			.3005	J	PCI/L			31.42
SW034	06/13/91	SW01230WC, SW80131WC	URANIUM-233,-234	.1127	J	PCI/L			-.0171	J	PCI/L			271.55
SW034	07/10/91	SW01333WC, SW80139WC	URANIUM-233,-234	.1647	J	PCI/L	V		.07039	J	PCI/L	A		80.23
			Number achieving RPD criteria* per number of duplicate pairs: 0/3						Percent achieving criteria*: 0.000					
STRONTIUM-89,-90														
SW033	08/07/91	SW01438WC, SW80145WC	STRONTIUM-89,-90	.8046	J	PCI/L	A		.7512	J	PCI/L	A		6.86
SW034	08/13/90	SW00236WC, SW80029WC	STRONTIUM-89,-90	.16		PCI/L	A		.06		PCI/L	A		90.91
SW034	06/13/91	SW01230WC, SW80131WC	STRONTIUM-89,-90	.3324	J	PCI/L	A		.6285	J	PCI/L	A		61.63
SW034	07/10/91	SW01333WC, SW80139WC	STRONTIUM-89,-90	0.4168	J	PCI/L	A		.7488	J	PCI/L	A		56.97
SW035	07/19/90	SW00141WC, SW80016WC	STRONTIUM-89,-90	.3728	J	PCI/L	A		.5881	J	PCI/L	A		44.81
SW069	08/20/90	SW00248WC, SW80035WC	STRONTIUM-89,-90	.25		PCI/L	A		0		PCI/L	A		200.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/6						Percent achieving criteria*: 16.667					
GROSS BETA PARTICLE ACTIVITY														
SW034	11/07/90	SW00506WC, SW80065WC	GROSS BETA PARTICLE ACTIV	TY 3.400		PCI/L	V		2.800		PCI/L	V		19.35
SW034	12/04/90	SW00610WC, SW80073WC	GROSS BETA PARTICLE ACTIV	TY 2.000	U	PCI/L	V		2.000	U	PCI/L	V		0.00
SW034	04/04/91	SW01020WC, SW80107WC	GROSS BETA PARTICLE ACTIV	TY 2.600		PCI/L	V		2.600		PCI/L	V		0.00
SW035	04/08/91	SW01025WC, SW80109WC	GROSS BETA PARTICLE ACTIV	TY 10.00		PCI/L	V		11.00		PCI/L	V		9.52
SW035	05/14/91	SW01132WC, SW80123WC	GROSS BETA PARTICLE ACTIV	TY 14		PCI/L	V		6.600		PCI/L	V		71.84
SW038	12/11/90	SW00624WC, SW80081WC	GROSS BETA PARTICLE ACTIV	TY 2.600		PCI/L	V		2.05	U	PCI/L	V		23.66
SW068	12/10/90	SW00621WC, SW80079WC	GROSS BETA PARTICLE ACTIV	TY 11.00		PCI/L	V		6.900		PCI/L	V		45.81
SW068	03/19/91	SW00929WC, SW80095WC	GROSS BETA PARTICLE ACTIV	TY 7.800		PCI/L			5.500		PCI/L			34.59
			Number achieving RPD criteria* per number of duplicate pairs: 5/8						Percent achieving criteria*: 62.500					
URANIUM-234														
SW034	12/04/90	SW00610WC, SW80073WC	URANIUM-234	.8000	U	PCI/L			.6000	U	PCI/L			0.00
SW034	04/04/91	SW01020WC, SW80107WC	URANIUM-234	.4100		PCI/L	A		.3500		PCI/L	A		15.79
SW035	04/08/91	SW01025WC, SW80109WC	URANIUM-234	.5900		PCI/L	A		.6100		PCI/L	A		3.33
SW035	05/14/91	SW01132WC, SW80123WC	URANIUM-234	2.800		PCI/L	A		3.300		PCI/L	A		16.39
SW038	12/11/90	SW00624WC, SW80081WC	URANIUM-234	1.200		PCI/L	A		1.600		PCI/L	A		28.57
SW068	12/10/90	SW00621WC, SW80079WC	URANIUM-234	3.500		PCI/L	A		2.600		PCI/L	A		29.51
SW068	03/19/91	SW00929WC, SW80095WC	URANIUM-234	1.800		PCI/L			2.400		PCI/L			28.57
			Number achieving RPD criteria* per number of duplicate pairs: 7/7						Percent achieving criteria*: 100.000					
RADIUM-226														
SW034	11/07/90	SW00506WC, SW80065WC	RADIUM-226	.19	U	PCI/L	A		.32	U	PCI/L	A		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1						Percent achieving criteria*: 100.000					
NEPTUNIUM-237														
SW034	11/07/90	SW00506WC, SW80065WC	NEPTUNIUM-237	.7000	U	PCI/L	JA		1.000	U	PCI/L	JA		0.00
SW034	12/04/90	SW00610WC, SW80073WC	NEPTUNIUM-237	1.000	U	PCI/L	JA		1.000	U	PCI/L	JA		0.00
SW034	04/04/91	SW01020WC, SW80107WC	NEPTUNIUM-237	.4200		PCI/L			.2100		PCI/L			66.67
SW035	04/08/91	SW01025WC, SW80109WC	NEPTUNIUM-237	.2500		PCI/L			-0.04		PCI/L			276.19
SW038	12/11/90	SW00624WC, SW80081WC	NEPTUNIUM-237	1.000	U	PCI/L	JA		1.000	U	PCI/L	JA		0.00
SW068	12/10/90	SW00621WC, SW80079WC	NEPTUNIUM-237	1.000	U	PCI/L	JA		1.000	U	PCI/L	JA		0.00
SW068	03/19/91	SW00929WC, SW80095WC	NEPTUNIUM-237	.3700	U	PCI/L			.0057	U	PCI/L			0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/7						Percent achieving criteria*: 71.429					
STRONTIUM-89														

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	11/07/90	SW00506WC, SW80065WC	STRONTIUM-89	-.1	U	PCI/L	V	1.2	U	PCI/L	V	0.00
SW034	12/04/90	SW00610WC, SW80073WC	STRONTIUM-89	-.1	U	PCI/L	V	.4	U	PCI/L	V	0.00
SW034	04/04/91	SW01020WC, SW80107WC	STRONTIUM-89	1.000	U	PCI/L		1.000	U	PCI/L		0.00
SW035	04/08/91	SW01025WC, SW80109WC	STRONTIUM-89	1.000	U	PCI/L		1.000	U	PCI/L		0.00
SW035	05/14/91	SW01132WC, SW80123WC	STRONTIUM-89	.3600		PCI/L	V	-0.25		PCI/L	V	1109.1
SW038	12/11/90	SW00624WC, SW80081WC	STRONTIUM-89	.5	U	PCI/L	V	-.3	U	PCI/L	V	0.00
SW068	12/10/90	SW00621WC, SW80079WC	STRONTIUM-89	0	U	PCI/L	V	.4	U	PCI/L	V	0.00
SW068	03/19/91	SW00929WC, SW80095WC	STRONTIUM-89	1.000	U	PCI/L		1.000	U	PCI/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/8					Percent achieving criteria*: 87.500				
AMERICIUM-241												
SW034	12/04/90	SW00610WC, SW80073WC	AMERICIUM-241	.2000	U	PCI/L		.0200	U	PCI/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	AMERICIUM-241	.0370		PCI/L	A	.135	U	PCI/L	A	113.95
SW068	12/10/90	SW00621WC, SW80079WC	AMERICIUM-241	.115	U	PCI/L	A	.000	U	PCI/L	A	0.00
SW068	03/19/91	SW00929WC, SW80095WC	AMERICIUM-241	.1000	U	PCI/L		.0076		PCI/L		171.75
			Number achieving RPD criteria* per number of duplicate pairs: 2/4					Percent achieving criteria*: 50.000				
PLUTONIUM-239												
SW034	11/07/90	SW00506WC, SW80065WC	PLUTONIUM-239	.110	U	PCI/L	JA	0.00	U	PCI/L	JA	0.00
SW034	12/04/90	SW00610WC, SW80073WC	PLUTONIUM-239	.9000	U	PCI/L		.8000	U	PCI/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	PLUTONIUM-239	.000	U	PCI/L	A	.002	U	PCI/L	A	0.00
SW068	12/10/90	SW00621WC, SW80079WC	PLUTONIUM-239	.006	U	PCI/L	A	.005	U	PCI/L	A	0.00
SW068	03/19/91	SW00929WC, SW80095WC	PLUTONIUM-239	.0076		PCI/L		.0040	U	PCI/L		62.07
			Number achieving RPD criteria* per number of duplicate pairs: 4/5					Percent achieving criteria*: 80.000				
URANIUM-235												
SW033	08/07/91	SW01438WC, SW80145WC	URANIUM-235	-0.002	J	PCI/L		0	J	PCI/L		200.00
SW034	12/04/90	SW00610WC, SW80073WC	URANIUM-235	.6000	U	PCI/L		.6000	U	PCI/L		0.00
SW034	04/04/91	SW01020WC, SW80107WC	URANIUM-235	.036	U	PCI/L	A	.035	U	PCI/L	A	0.00
SW034	06/13/91	SW01230WC, SW80131WC	URANIUM-235	.0817	J	PCI/L		.08978	J	PCI/L		9.42
SW034	07/10/91	SW01333WC, SW80139WC	URANIUM-235	.04381	J	PCI/L	V	-.00782	J	PCI/L	A	286.91
SW035	04/08/91	SW01025WC, SW80109WC	URANIUM-235	.045	U	PCI/L	A	.041	U	PCI/L	A	0.00
SW035	05/14/91	SW01132WC, SW80123WC	URANIUM-235	.053	U	PCI/L	A	.023	U	PCI/L	A	0.00
SW038	12/11/90	SW00624WC, SW80081WC	URANIUM-235	.051	U	PCI/L	A	.000	U	PCI/L	A	0.00
SW068	12/10/90	SW00621WC, SW80079WC	URANIUM-235	.073	U	PCI/L	A	.000	U	PCI/L	A	0.00
SW068	03/19/91	SW00929WC, SW80095WC	URANIUM-235	.2000	U	PCI/L		.0900	U	PCI/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/10					Percent achieving criteria*: 80.000				
RADIUM-228												
SW034	11/07/90	SW00506WC, SW80065WC	RADIUM-228	.8600		PCI/L	V	2.200		PCI/L	V	87.58
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
URANIUM-238												
SW033	08/07/91	SW01438WC, SW80145WC	URANIUM-238	0.3411	J	PCI/L		.3106	J	PCI/L		9.36
SW034	12/04/90	SW00610WC, SW80073WC	URANIUM-238	.6000	U	PCI/L		.6000	U	PCI/L		0.00
SW034	04/04/91	SW01020WC, SW80107WC	URANIUM-238	.072	U	PCI/L	A	.3000		PCI/L	A	122.58
SW034	06/13/91	SW01230WC, SW80131WC	URANIUM-238	.1193	J	PCI/L		.09833	J	PCI/L		19.27
SW034	07/10/91	SW01333WC, SW80139WC	URANIUM-238	0.038	J	PCI/L	A	.08994	J	PCI/L	A	81.19

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-b

Relative Percent Difference from the Mean
OU1 Surface Water Filtered Radiochemistry Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
SW035	04/08/91	SW01025WC, SW80109WC	URANIUM-238	.8600	PCI/L	A	.8600	PCI/L	A	0.00
SW035	05/14/91	SW01132WC, SW80123WC	URANIUM-238	2.500	PCI/L	A	2.600	PCI/L	A	3.92
SW038	12/11/90	SW00624WC, SW80081WC	URANIUM-238	.3000	PCI/L	A	1.000	PCI/L	A	107.69
SW068	12/10/90	SW00621WC, SW80079WC	URANIUM-238	3.200	PCI/L	A	3.200	PCI/L	A	0.00
SW068	03/19/91	SW00929WC, SW80095WC	URANIUM-238	2.500	PCI/L		2.700	PCI/L		7.69

Number achieving RPD criteria* per number of duplicate pairs: 7/10 Percent achieving criteria*: 70.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G17-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Filtered Radiochemistry Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result	Duplicate Result	Rel. % Diff.
GROSS ALPHA						
SW046	08/08/91	SW01457WC, SW80147WC	GROSS ALPHA	4.085 PCI/L A	5.461 PCI/L A	28.83
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
GROSS BETA						
SW046	08/08/91	SW01457WC, SW80147WC	GROSS BETA	4.648 PCI/L A	7.364 PCI/L A	45.22
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000
URANIUM-233,-234						
SW046	08/08/91	SW01457WC, SW80147WC	URANIUM-233,-234	4.8015 PCI/L	-.00204 J PCI/L	200.17
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000
STRONTIUM-89,-90						
SW046	08/08/91	SW01457WC, SW80147WC	STRONTIUM-89,-90	.8237 J PCI/L A	.3692 J PCI/L A	76.20
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000
RADIUM-226						
			Number achieving RPD criteria* per number of duplicate pairs: 0/0		Percent achieving criteria*:	**********
URANIUM-235						
SW046	08/08/91	SW01457WC, SW80147WC	URANIUM-235	0.0433 J PCI/L	.01019 J PCI/L	123.80
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000
URANIUM-238						
SW046	08/08/91	SW01457WC, SW80147WC	URANIUM-238	3.2425 PCI/L	.01631 J PCI/L	198.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-a

Relative Percent Difference from the Mean
OU1 Groundwater Water-Quality Parameter Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
BICARBONATE AS CACO3												
6886	05/23/90	G68860523021005, G68860523021045	BICARBONATE AS CACO3	143		MG/L		146		MG/L		2.08
6886	08/01/90	GW00187IT, GW00190IT	BICARBONATE AS CACO3	110		MG/L		110		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
CARBONATE												
6986	02/12/90	G69860290001, G69860290001D	CARBONATE	5	U	MG/L	V	5	U	MG/L	V	0.00
6886	05/23/90	G68860523021005, G68860523021045	CARBONATE	10.0	U	MG/L	JA	10.0		MG/L	JA	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
NITRATE/NITRITE												
6986	02/12/90	G69860290001, G69860290001D	NITRATE/NITRITE	4.2		MG/L	V	4.1		MG/L	V	2.41
6886	05/23/90	G68860523021005, G68860523021045	NITRATE/NITRITE	0.10	U	MG/L	V	0.10	U	MG/L	V	0.00
6886	08/01/90	GW00187IT, GW00190IT	NITRATE/NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
PH												
6986	02/12/90	G69860290001, G69860290001D	pH	7.3		PH		7.3		PH		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
TOTAL SUSPENDED SOLIDS												
6886	05/23/90	G68860523021005, G68860523021045	TOTAL SUSPENDED SOLIDS	5.0	U	MG/L	V	5.0	U	MG/L	V	0.00
6886	08/01/90	GW00187IT, GW00190IT	TOTAL SUSPENDED SOLIDS	4		MG/L		4	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
TOTAL DISSOLVED SOLIDS												
6986	02/12/90	G69860290001, G69860290001D	TOTAL DISSOLVED SOLIDS	920		MG/L	V	910		MG/L	V	1.09
6886	05/23/90	G68860523021005, G68860523021045	TOTAL DISSOLVED SOLIDS	200		MG/L	V	208		MG/L	V	3.92
6886	08/01/90	GW00187IT, GW00190IT	TOTAL DISSOLVED SOLIDS	190		MG/L		180		MG/L		5.41
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
SILICA, DISSOLVED												
6886	08/01/90	GW00187IT, GW00190IT	SILICA, DISSOLVED	7.9		MG/L		7.8		MG/L		1.27
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PHOSPHATE												
6886	08/01/90	GW00187IT, GW00190IT	PHOSPHATE	0.02		MG/L		0.02		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
NITRITE												
6886	05/23/90	G68860523021005, G68860523021045	NITRITE	0.020	U	MG/L	V	0.020	U	MG/L	V	0.00
6886	08/01/90	GW00187IT, GW00190IT	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2					Percent achieving criteria*: 100.000				
SULFATE												
6986	02/12/90	G69860290001, G69860290001D	SULFATE	220		MG/L	V	230		MG/L	V	4.44
6886	05/23/90	G68860523021005, G68860523021045	SULFATE	18.8		MG/L	V	15.8		MG/L	V	17.34
6886	08/01/90	GW00187IT, GW00190IT	SULFATE	10		MG/L		10		MG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-a

Relative Percent Difference from the Mean
OU1 Groundwater Water-Quality Parameter Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result				Rel. % Diff.
			Number achieving RPD criteria* per number of duplicate pairs: 3/3				Percent achieving criteria*: 100.000				
CHLORIDE											
6986	02/12/90	G69860290001, G69860290001D	CHLORIDE	110	MG/L	V	120 J	MG/L	A		8.70
6886	05/23/90	G68860523021005, G68860523021045	CHLORIDE	13.7	MG/L	V	13.7	MG/L	V		0.00
6886	08/01/90	GW00187IT, GW00190IT	CHLORIDE	32	MG/L		31	MG/L			3.17
			Number achieving RPD criteria* per number of duplicate pairs: 3/3				Percent achieving criteria*: 100.000				
FLUORIDE											
6986	02/12/90	G69860290001, G69860290001D	FLUORIDE	0.9	MG/L	V	1.0	MG/L	V		10.53
6886	05/23/90	G68860523021005, G68860523021045	FLUORIDE	0.33	MG/L	V	0.31	MG/L	V		6.25
6886	08/01/90	GW00187IT, GW00190IT	FLUORIDE	0.4	MG/L		0.4	MG/L			0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3				Percent achieving criteria*: 100.000				
CARBONATE AS CACO3											
6886	08/01/90	GW00187IT, GW00190IT	CARBONATE AS CACO3	0	MG/L		0	MG/L			******
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000				
CYANIDE											
6886	05/23/90	G68860523021005, G68860523021045	CYANIDE	0.0072 U	UG/L	JA	0.0146	UG/L	JA		67.89
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000				
BICARBONATE											
6986	02/12/90	G69860290001, G69860290001D	BICARBONATE	430	MG/L	V	400	MG/L	V		7.23
6886	05/23/90	G68860523021005, G68860523021045	BICARBONATE	143	MG/L	JA	146	MG/L	JA		2.08
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-b

Relative Percent Difference from the Mean
OU1 Surface Water Water-Quality Parameter Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
BICARBONATE AS CACO3												
SW029	09/12/90	SW00311WC, SW80042WC	BICARBONATE AS CACO3	130		MG/L		130		MG/L		0.00
SW034	11/07/90	SW00506WC, SW80065WC	BICARBONATE AS CACO3	160		MG/L		160		MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	BICARBONATE AS CACO3	130		MG/L		4		MG/L		188.06
SW035	07/19/90	SW00141WC, SW80016WC	BICARBONATE AS CACO3	180		MG/L		180		MG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	BICARBONATE AS CACO3	140		MG/L		140		MG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	BICARBONATE AS CACO3	270		MG/L		270		MG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	BICARBONATE AS CACO3	200		MG/L		200		MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	BICARBONATE AS CACO3	120		MG/L		98		MG/L		20.18
			Number achieving RPD criteria* per number of duplicate pairs: 7/8					Percent achieving criteria*: 87.500				
CARBONATE												
SW034	01/15/90	SW03490001, SW03490001D	CARBONATE	5	U	MG/L		5	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
NITRATE/NITRITE												
SW029	09/12/90	SW00311WC, SW80042WC	NITRATE/NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
SW034	01/15/90	SW03490001, SW03490001D	NITRATE/NITRITE	0.43		MG/L		0.45		MG/L		4.55
SW034	11/07/90	SW00506WC, SW80065WC	NITRATE/NITRITE	1.6		MG/L		1.5		MG/L		6.45
SW034	12/04/90	SW00610WC, SW80073WC	NITRATE/NITRITE	0.6		MG/L		0.02	U	MG/L		187.10
SW035	07/19/90	SW00141WC, SW80016WC	NITRATE/NITRITE	1.6		MG/L		1.6		MG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	NITRATE/NITRITE	2.1		MG/L		2.1		MG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	NITRATE/NITRITE	0.8		MG/L		0.8		MG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	NITRATE/NITRITE	4.2		MG/L		4.2		MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	NITRATE/NITRITE	1.2		MG/L		1.2		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/9					Percent achieving criteria*: 88.889				
PH												
SW034	01/15/90	SW03490001, SW03490001D	pH	8.0		PH		8.0		PH		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
OIL AND GREASE												
SW029	09/12/90	SW00311WC, SW80042WC	OIL AND GREASE	0.4		MG/L		0.4		MG/L		0.00
SW034	01/15/90	SW03490001, SW03490001D	OIL AND GREASE	1	U	MG/L		1		MG/L		0.00
SW034	11/07/90	SW00506WC, SW80065WC	OIL AND GREASE	5	U	MG/L		5	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	OIL AND GREASE	5	U	MG/L	V	5	U	MG/L	V	0.00
SW035	07/19/90	SW00141WC, SW80016WC	OIL AND GREASE	0.5		MG/L		0.8		MG/L		46.15
SW035	10/03/90	SW00410WC, SW80051WC	OIL AND GREASE	0.5		MG/L		0.6		MG/L		18.18
SW038	12/11/90	SW00624WC, SW80081WC	OIL AND GREASE	0.4		MG/L		0.4		MG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	OIL AND GREASE	0.6		MG/L		0.7		MG/L		15.38
SW069	08/20/90	SW00248WC, SW80035WC	OIL AND GREASE	0.7		MG/L		1.2		MG/L		52.63
			Number achieving RPD criteria* per number of duplicate pairs: 7/9					Percent achieving criteria*: 77.778				
TOTAL SUSPENDED SOLIDS												
SW029	09/12/90	SW00311WC, SW80042WC	TOTAL SUSPENDED SOLIDS	16		MG/L		17		MG/L		6.06
SW034	01/15/90	SW03490001, SW03490001D	TOTAL SUSPENDED SOLIDS	5	U	MG/L		5	U	MG/L		0.00
SW034	11/07/90	SW00506WC, SW80065WC	TOTAL SUSPENDED SOLIDS	140		MG/L		141	U	MG/L		0.71
SW034	12/04/90	SW00610WC, SW80073WC	TOTAL SUSPENDED SOLIDS	41		MG/L		4	U	MG/L		164.44

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-b

Relative Percent Difference from the Mean
OU1 Surface Water Water-Quality Parameter Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
SW035	07/19/90	SW00141WC, SW80016WC	TOTAL SUSPENDED SOLIDS	12		MG/L	13		MG/L	8.00
SW035	10/03/90	SW00410WC, SW80051WC	TOTAL SUSPENDED SOLIDS	74		MG/L	68		MG/L	8.45
SW038	12/11/90	SW00624WC, SW80081WC	TOTAL SUSPENDED SOLIDS	4	U	MG/L	4	U	MG/L	0.00
SW068	12/10/90	SW00621WC, SW80079WC	TOTAL SUSPENDED SOLIDS	4	U	MG/L	4	U	MG/L	0.00
SW069	08/20/90	SW00248WC, SW80035WC	TOTAL SUSPENDED SOLIDS	18		MG/L	16		MG/L	11.76
			Number achieving RPD criteria* per number of duplicate pairs: 8/9				Percent achieving criteria*: 88.889			
TOTAL DISSOLVED SOLIDS										
SW029	09/12/90	SW00311WC, SW80042WC	TOTAL DISSOLVED SOLIDS	200		MG/L	190		MG/L	5.13
SW034	01/15/90	SW03490001, SW03490001D	TOTAL DISSOLVED SOLIDS	240		MG/L	240		MG/L	0.00
SW034	11/07/90	SW00506WC, SW80065WC	TOTAL DISSOLVED SOLIDS	382		MG/L	472		MG/L	21.08
SW034	12/04/90	SW00610WC, SW80073WC	TOTAL DISSOLVED SOLIDS	200		MG/L	10	U	MG/L	180.95
SW035	07/19/90	SW00141WC, SW80016WC	TOTAL DISSOLVED SOLIDS	350		MG/L	360		MG/L	2.82
SW035	10/03/90	SW00410WC, SW80051WC	TOTAL DISSOLVED SOLIDS	250		MG/L	250		MG/L	0.00
SW038	12/11/90	SW00624WC, SW80081WC	TOTAL DISSOLVED SOLIDS	380		MG/L	370		MG/L	2.67
SW068	12/10/90	SW00621WC, SW80079WC	TOTAL DISSOLVED SOLIDS	430		MG/L	460		MG/L	6.74
SW069	08/20/90	SW00248WC, SW80035WC	TOTAL DISSOLVED SOLIDS	290		MG/L	290		MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/9				Percent achieving criteria*: 88.889			
SILICA, DISSOLVED										
SW029	09/12/90	SW00311WC, SW80042WC	SILICA, DISSOLVED	6.0		MG/L	5.9		MG/L	1.68
SW034	11/07/90	SW00506WC, SW80065WC	SILICA, DISSOLVED	27		MG/L	37		MG/L	31.25
SW034	12/04/90	SW00610WC, SW80073WC	SILICA, DISSOLVED	9.3		MG/L	0.4	U	MG/L	183.51
SW035	07/19/90	SW00141WC, SW80016WC	SILICA, DISSOLVED	7.7		MG/L	7.8		MG/L	1.29
SW035	10/03/90	SW00410WC, SW80051WC	SILICA, DISSOLVED	6.1		MG/L	6.3		MG/L	3.23
SW038	12/11/90	SW00624WC, SW80081WC	SILICA, DISSOLVED	7.1		MG/L	7.2		MG/L	1.40
SW068	12/10/90	SW00621WC, SW80079WC	SILICA, DISSOLVED	5.8		MG/L	5.7		MG/L	1.74
SW069	08/20/90	SW00248WC, SW80035WC	SILICA, DISSOLVED	6.4		MG/L	6.4		MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 6/8				Percent achieving criteria*: 75.000			
CYANIDES										
SW034	11/07/90	SW00506WC, SW80065WC	CYANIDES	0.02	U	MG/L	0.03	U	MG/L	0.00
SW034	12/04/90	SW00610WC, SW80073WC	CYANIDES	0.02	U	MG/L	0.02	U	MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 2/2				Percent achieving criteria*: 100.000			
PHOSPHATE										
SW029	09/12/90	SW00311WC, SW80042WC	PHOSPHATE	0.05		MG/L	0.04		MG/L	22.22
SW034	11/07/90	SW00506WC, SW80065WC	PHOSPHATE	.31		MG/L	.22		MG/L	33.96
SW034	12/04/90	SW00610WC, SW80073WC	PHOSPHATE	0.06		MG/L	0.01	U	MG/L	142.86
SW035	07/19/90	SW00141WC, SW80016WC	PHOSPHATE	0.05		MG/L	0.06		MG/L	18.18
SW035	10/03/90	SW00410WC, SW80051WC	PHOSPHATE	0.08		MG/L	0.10		MG/L	22.22
SW038	12/11/90	SW00624WC, SW80081WC	PHOSPHATE	0.01	U	MG/L	0.01	U	MG/L	0.00
SW068	12/10/90	SW00621WC, SW80079WC	PHOSPHATE	0.02		MG/L	0.01		MG/L	66.67
SW069	08/20/90	SW00248WC, SW80035WC	PHOSPHATE	0.09		MG/L	0.03		MG/L	100.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/8				Percent achieving criteria*: 50.000			
NITRITE										
SW029	09/12/90	SW00311WC, SW80042WC	NITRITE	0.02	U	MG/L	0.02	U	MG/L	0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-b

Relative Percent Difference from the Mean
OU1 Surface Water Water-Quality Parameter Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW034	11/07/90	SW00506WC, SW80065WC	NITRITE	.01	U	MG/L		.01	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	NITRITE	0.08		MG/L		0.08		MG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	NITRITE	0.02	U	MG/L		0.02	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 8/8					Percent achieving criteria*: 100.000				
SULFATE												
SW029	09/12/90	SW00311WC, SW80042WC	SULFATE	14		MG/L		13		MG/L		7.41
SW034	01/15/90	SW03490001, SW03490001D	SULFATE	27		MG/L		27		MG/L		0.00
SW034	11/07/90	SW00506WC, SW80065WC	SULFATE	24		MG/L		23		MG/L		4.26
SW034	12/04/90	SW00610WC, SW80073WC	SULFATE	21		MG/L		2	U	MG/L		165.22
SW035	07/19/90	SW00141WC, SW80016WC	SULFATE	40		MG/L		38		MG/L		5.13
SW035	10/03/90	SW00410WC, SW80051WC	SULFATE	27		MG/L		28		MG/L		3.64
SW038	12/11/90	SW00624WC, SW80081WC	SULFATE	25		MG/L		24		MG/L		4.08
SW068	12/10/90	SW00621WC, SW80079WC	SULFATE	45		MG/L		45		MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	SULFATE	32		MG/L		30		MG/L		6.45
			Number achieving RPD criteria* per number of duplicate pairs: 8/9					Percent achieving criteria*: 88.889				
CHLORIDE												
SW029	09/12/90	SW00311WC, SW80042WC	CHLORIDE	32		MG/L		32		MG/L		0.00
SW034	01/15/90	SW03490001, SW03490001D	CHLORIDE	16		MG/L		17		MG/L		6.06
SW034	11/07/90	SW00506WC, SW80065WC	CHLORIDE	17		MG/L		17		MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	CHLORIDE	20		MG/L		0.5		MG/L		190.24
SW035	07/19/90	SW00141WC, SW80016WC	CHLORIDE	44		MG/L		43		MG/L		2.30
SW035	10/03/90	SW00410WC, SW80051WC	CHLORIDE	31		MG/L		32		MG/L		3.17
SW038	12/11/90	SW00624WC, SW80081WC	CHLORIDE	51		MG/L		53		MG/L		3.85
SW068	12/10/90	SW00621WC, SW80079WC	CHLORIDE	75		MG/L		76		MG/L		1.32
SW069	08/20/90	SW00248WC, SW80035WC	CHLORIDE	65		MG/L		73		MG/L		11.59
			Number achieving RPD criteria* per number of duplicate pairs: 8/9					Percent achieving criteria*: 88.889				
FLUORIDE												
SW029	09/12/90	SW00311WC, SW80042WC	FLUORIDE	0.5		MG/L		0.4		MG/L		22.22
SW034	11/07/90	SW00506WC, SW80065WC	FLUORIDE	.5	U	MG/L		.5	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	FLUORIDE	0.4		MG/L		0.1	U	MG/L		120.00
SW035	07/19/90	SW00141WC, SW80016WC	FLUORIDE	0.6		MG/L		0.6		MG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	FLUORIDE	0.4		MG/L		0.5		MG/L		22.22
SW038	12/11/90	SW00624WC, SW80081WC	FLUORIDE	0.7		MG/L		0.6		MG/L		15.38
SW068	12/10/90	SW00621WC, SW80079WC	FLUORIDE	0.7		MG/L		0.7		MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	FLUORIDE	0.6		MG/L		0.6		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/8					Percent achieving criteria*: 87.500				
SULFIDE												
SW034	11/07/90	SW00506WC, SW80065WC	SULFIDE	10	U	MG/L		10	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	SULFIDE	10	U	MG/L	V	10	U	MG/L	V	0.00
SW038	12/11/90	SW00624WC, SW80081WC	SULFIDE	1	U	MG/L		1	U	MG/L		0.00

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-b

Relative Percent Difference from the Mean
OU1 Surface Water Water-Quality Parameter Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
SW068	12/10/90	SW00621WC, SW80079WC	SULFIDE	1	U	MG/L		1	U	MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 4/4					Percent achieving criteria*: 100.000				
CARBONATE AS CACO3												
SW029	09/12/90	SW00311WC, SW80042WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW034	11/07/90	SW00506WC, SW80065WC	CARBONATE AS CACO3	1	U	MG/L		1	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW035	07/19/90	SW00141WC, SW80016WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW035	10/03/90	SW00410WC, SW80051WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW038	12/11/90	SW00624WC, SW80081WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW068	12/10/90	SW00621WC, SW80079WC	CARBONATE AS CACO3	0		MG/L		0		MG/L		******
SW069	08/20/90	SW00248WC, SW80035WC	CARBONATE AS CACO3	4		MG/L		32		MG/L		155.56
			Number achieving RPD criteria* per number of duplicate pairs: 1/8					Percent achieving criteria*: 12.500				
CYANIDE												
SW034	01/15/90	SW03490001, SW03490001D	CYANIDE	0.0200	U	MG/L		0.0100	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	CYANIDE	0.02	U	MG/L	JA	0.02	U	MG/L	JA	0.00
SW039	06/07/90	SW00058WC, SW00059WC	CYANIDE	10.0	U	UG/L		10.0	U	UG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/3					Percent achieving criteria*: 100.000				
BICARBONATE												
SW034	01/15/90	SW03490001, SW03490001D	BICARBONATE	150		MG/L		150		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1					Percent achieving criteria*: 100.000				
PHOSPHORUS												
SW034	11/07/90	SW00506WC, SW80065WC	PHOSPHORUS	.06		MG/L		.09		MG/L		40.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1					Percent achieving criteria*: 0.000				
ORTHOPHOSPHATE												
SW029	09/12/90	SW00311WC, SW80042WC	ORTHOPHOSPHATE	0.01		MG/L		0.01	U	MG/L		0.00
SW034	12/04/90	SW00610WC, SW80073WC	ORTHOPHOSPHATE	0.01		MG/L		0.01	U	MG/L		0.00
SW035	07/19/90	SW00141WC, SW80016WC	ORTHOPHOSPHATE	0.01	U	MG/L		0.01	U	MG/L		0.00
SW035	10/03/90	SW00410WC, SW80051WC	ORTHOPHOSPHATE	0.01		MG/L		0.01		MG/L		0.00
SW038	12/11/90	SW00624WC, SW80081WC	ORTHOPHOSPHATE	0.01	U	MG/L		0.01	U	MG/L		0.00
SW068	12/10/90	SW00621WC, SW80079WC	ORTHOPHOSPHATE	0.01	U	MG/L		0.01	U	MG/L		0.00
SW069	08/20/90	SW00248WC, SW80035WC	ORTHOPHOSPHATE	0.01		MG/L		0.01		MG/L		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 7/7					Percent achieving criteria*: 100.000				

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-c

Relative Percent Difference from the Mean
OU1 Seep/Spring Water Water-Quality Parameter Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result	Duplicate Result	Rel. % Diff.
CARBONATE						
SW045	02/19/90	SW04590002, SW04590002D	CARBONATE	5 U MG/L	5 U MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
NITRATE/NITRITE						
SW045	02/19/90	SW04590002, SW04590002D	NITRATE/NITRITE	7.8 MG/L	8.3 MG/L	6.21
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
PH						
SW045	02/19/90	SW04590002, SW04590002D	pH	8.1 PH	8.0 PH	1.24
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
OIL AND GREASE						
SW045	02/19/90	SW04590002, SW04590002D	OIL AND GREASE	1 U MG/L	1 U MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
TOTAL SUSPENDED SOLIDS						
SW045	02/19/90	SW04590002, SW04590002D	TOTAL SUSPENDED SOLIDS	130 MG/L	30 MG/L	125.00
			Number achieving RPD criteria* per number of duplicate pairs: 0/1		Percent achieving criteria*:	0.000
TOTAL DISSOLVED SOLIDS						
SW045	02/19/90	SW04590002, SW04590002D	TOTAL DISSOLVED SOLIDS	530 MG/L	550 MG/L	3.70
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
SULFATE						
SW045	02/19/90	SW04590002, SW04590002D	SULFATE	44 MG/L	41 MG/L	7.06
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
CHLORIDE						
SW045	02/19/90	SW04590002, SW04590002D	CHLORIDE	100 MG/L	100 MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000
BICARBONATE						
SW045	02/19/90	SW04590002, SW04590002D	BICARBONATE	270 MG/L	270 MG/L	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 1/1		Percent achieving criteria*:	100.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-d

Relative Percent Difference from the Mean
OU1 Surface Soil Water-Quality Parameter Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result			Duplicate Result			Rel. % Diff.
NITRATE/NITRITE										
RA011	02/27/92	SS03021WS, SS03022WS	Nitrate/Nitrite	.568	MG/KG	JA	.575	MG/KG	JA	1.22
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			
OIL & GREASE										
RA011	02/27/92	SS03021WS, SS03022WS	Oil & Grease	.108	MG/KG	V	.217	MG/KG	V	67.08
			Number achieving RPD criteria* per number of duplicate pairs: 0/1				Percent achieving criteria*: 0.000			
AMMONIA										
RA011	02/27/92	SS03021WS, SS03022WS	Ammonia	2.82	MG/KG	JA	2.87	MG/KG	JA	1.76
			Number achieving RPD criteria* per number of duplicate pairs: 1/1				Percent achieving criteria*: 100.000			

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Water-Quality Parameter Field Duplicates

Location	Date	Sample, Duplicate ID	Analyte	Sample Result				Duplicate Result				Rel. % Diff.
% SOLIDS												
B300190	02/02/90	B3001900006	% SOLIDS	85.9		%		86.2		%		0.35
B300790	02/09/90	B3007900004	% SOLIDS	87.3		%		85.9		%		1.62
B301190	02/22/90	B3011900004	% SOLIDS	87.7		%		84.6		%		3.60
B301490	02/26/90	B3014900812	% SOLIDS	81.4		%		80.9		%		0.62
B301790	03/20/90	B3017900408	% SOLIDS	80.8		%		80.4		%		0.50
B301990	03/21/90	B3019900006	% SOLIDS	80.7		%		84.2		%		4.25
			Number achieving RPD criteria* per number of duplicate pairs: 6/6					Percent achieving criteria*: 100.000				
NITRATE/NITRITE												
B300190	02/02/90	B3001900006	NITRATE/NITRITE	1.2	U	MG/KG	V	1.2	U	MG/KG	V	0.00
B300790	02/09/90	B3007900004	NITRATE/NITRITE	1.8	U	MG/KG	V	1.9	U	MG/KG	V	0.00
B301190	02/22/90	B3011900004	NITRATE/NITRITE	5.4		MG/KG		2.8		MG/KG		63.41
B301490	02/26/90	B3014900812	NITRATE/NITRITE	1.6		MG/KG	V	1.4		MG/KG	V	13.33
B301790	03/20/90	B3017900408	NITRATE/NITRITE	1.4		MG/KG	V	1.7		MG/KG	V	19.35
B301990	03/21/90	B3019900006	NITRATE/NITRITE	1.2	U	MG/KG		1.2	U	MG/KG	V	0.00
			Number achieving RPD criteria* per number of duplicate pairs: 5/6					Percent achieving criteria*: 83.333				
PH												
B300190	02/02/90	B3001900006	pH	8.3		PH		8.1		PH		2.44
B300790	02/09/90	B3007900004	pH	8.9		PH		8.5		PH		4.60
B301190	02/22/90	B3011900004	pH	7.9		PH		7.6		PH		3.87
B301490	02/26/90	B3014900812	pH	8.8		PH		8.9		PH		1.13
B301790	03/20/90	B3017900408	pH	8.7		PH		8.7		PH		0.00
B301990	03/21/90	B3019900006	pH	8.5		PH		8.7		PH		2.33
B303390	07/11/90	B3033900008	pH	6.9		PH		7.0		PH		1.44
B303490	07/12/90	B3034900008	pH	7.8		PH		7.4		PH		5.26
B303590	07/12/90	B3035900009	pH	7.8		PH		7.7		PH		1.29
B303690	07/13/90	B3036900006	pH	8.0		PH		7.9		PH		1.26
			Number achieving RPD criteria* per number of duplicate pairs: 10/10					Percent achieving criteria*: 100.000				
NITRATE												
B303390	07/11/90	B3033900008	NITRATE	2.0		MG/KG		0.76		MG/KG		89.86
B303490	07/12/90	B3034900008	NITRATE	0.58	U	MG/KG		0.52	U	MG/KG		0.00
B303590	07/12/90	B3035900009	NITRATE	0.55	U	MG/KG		0.54	U	MG/KG		0.00
B303690	07/13/90	B3036900006	NITRATE	0.47	U	MG/KG		0.54	U	MG/KG		0.00
			Number achieving RPD criteria* per number of duplicate pairs: 3/4					Percent achieving criteria*: 75.000				
SULFIDE												
B300190	02/02/90	B3001900006	SULFIDE	2	U	MG/KG	V	2	U	MG/KG	V	0.00
B300790	02/09/90	B3007900004	SULFIDE	2	U	MG/KG	V	2	U	MG/KG	V	0.00
B301190	02/22/90	B3011900004	SULFIDE	2	U	MG/KG		2	U	MG/KG		0.00
B301490	02/26/90	B3014900812	SULFIDE	2	U	MG/KG	V	2	U	MG/KG	V	0.00
B301790	03/20/90	B3017900408	SULFIDE	2		MG/KG	V	2		MG/KG	V	0.00
B301990	03/21/90	B3019900006	SULFIDE	2	U	MG/KG	V	7		MG/KG	V	111.11
B303390	07/11/90	B3033900008	SULFIDE	57.8		MG/KG		71.0		MG/KG		20.50
B303490	07/12/90	B3034900008	SULFIDE	58.5		MG/KG		54.5		MG/KG		7.08
B303590	07/12/90	B3035900009	SULFIDE	52.6		MG/KG		52.1		MG/KG		0.96

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

Table G18-e

Relative Percent Difference from the Mean
OU1 Subsurface Soil Water-Quality Parameter Field Duplicates (continued)

Location	Date	Sample, Duplicate ID	Analyte	Sample Result		Duplicate Result		Rel. % Diff.
B303690	07/13/90	B3036900006	SULFIDE	55.6	MG/KG	61.2	MG/KG	9.59

Number achieving RPD criteria* per number of duplicate pairs: 9/10 Percent achieving criteria*: 90.000

Note: Where both Field Sample and Field Duplicate results are non-detects, RPD defaults to zero; *Criteria: Soils - 40%, Waters - 30 %
Where one result is non-detect and one is detect, detection limit for non-detect is used to calculate RPD.

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TECHNICAL MEMORANDUM 1

ADDENDUM TO FINAL PHASE III RFI/RI WORK PLAN

CHEMICAL ANALYSIS PLAN

ROCKY FLATS PLANT

881 HILLSIDE AREA

(OPERABLE UNIT NO. 1)

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM

August 1991

TECHNICAL MEMORANDUM 1

ADDENDUM TO
FINAL PHASE III RFI/RI WORK PLAN
CHEMICAL ANALYSIS PLAN
881 HILLSIDE AREA
(OPERABLE UNIT NO. 1)

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS PLANT
GOLDEN, COLORADO

ENVIRONMENTAL RESTORATION PROGRAM

AUGUST 1991

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TECHNICAL MEMORANDUM 1

ADDENDUM TO
FINAL PHASE III RFI/RI WORK PLAN
CHEMICAL ANALYSIS PLAN
881 HILLSIDE AREA
(OPERABLE UNIT NO. 1)

This document provides analysis and rationale for amending the analytical strategy for the RCRA Facility Investigation/CERCLA Remedial Investigation (RFI/RI) at Operable Unit No. 1 (OU1). The RFI/RI Work Plan stipulates that soils, sediments, ground water, and surface water be analyzed for all Contract Laboratory Program (CLP) Target Compound List (TCL) organic constituents. The analytical program is conservative for various reasons discussed herein; however, considering that the RFI/RI for OU 1 is in its third phase, it appears that the need for such a comprehensive analytical program should be reevaluated. This document presents a historical review of how the analyte lists evolved as well as an analysis of available sampling results from OU1 as justification for eliminating certain analytical suites from the overall program. The basis for developing a site-specific target analyte list is discussed in U.S Environmental Protection Agency (EPA) guidance documents for conducting remedial investigations and feasibility studies (EPA, 1988) and for developing data quality objectives for remedial response activities (EPA, 1989). As discussed with EPA and the Colorado Department of Health (CDH) in a meeting on 17 May 1991, the approach is applicable to establishing the analytical strategy for the upcoming OU1 RFI/RI.

BACKGROUND

Comprehensive site characterization began at OU1 in 1986. A Phase 1 RI report for OU1 was submitted in June 1987, and a Phase II report submitted in March 1988. Site characterization for these previous RIs was based on analysis of soils, sediments, ground water, and surface water for the CLP Hazardous Substance List (HSL) compounds. (Currently this list of analytes is known as the TCL; however, it should be noted that there are minor differences in the two lists.) A Phase III RFI/RI Work Plan has been prepared for OU1 which is designed to fill data gaps that were identified in the earlier phases of investigation.

The OU1 RFI/RI Work Plan specifies analysis of soils, sediments, ground water, and surface water for all TCL organic compounds. Analysis for the full suite of TCL organics for ground water and surface water beyond the first round of samples would be dependent on the initial results. The need for continued full suite analysis would be based on an assessment approach not unlike that presented in this document. The TCL was chosen as the basis for characterizing this OU because it is used by EPA in characterizing uncontrolled hazardous waste sites where historical waste disposal practices are often unknown, and because of the associated high quality assurance/quality control procedures that are widely accepted by both federal and

state agencies. Although chlorinated solvents are the principal contaminants at this OU, based on historical waste disposal records and previously collected data, a list of all chemicals disposed at this location is not known, which established the need for monitoring for a more comprehensive list of analytes.

With respect to soils, the full suite of TCL organics was specified because the upcoming phase of investigation is designed to provide a comprehensive characterization, eliminating the need for subsequent phases of investigation. More specifically, semivolatiles and pesticides/PCBs were to be analyzed at OU1 because previously collected data indicated the ubiquitous occurrence of phthalate esters and the infrequent occurrence of other semivolatile compounds and PCBs. Also, several proposed waste investigation boreholes will penetrate waste sources (Individual Hazardous Substance Sites [IHSSs]), where previous targeted soil sampling was outside the waste source boundaries. Thus, the full suite of TCL organics is specified because of the uncertainty of the types of waste that were disposed at these OU1 IHSSs.

Ground water and surface water are to be analyzed for the full suite of TCL organics because of the infrequent occurrence of semivolatiles or pesticides/PCBs as indicated by previously collected data, and the limited quantity of historical data for these classes of chemicals (one to two rounds). Sediments will also be analyzed for the full suite of TCL organics largely because of the relevance of sediments to contaminant migration in surface water.

APPROACH

The approach to defining a site-specific target analyte list consists of the following two steps:

Step 1: Summarize Existing Analytical Data by Analytical Suite

In Step 1, existing data are tabularized showing the total number of analyses for each chemical within an analytical suite, and the total number of detections of each chemical. This is performed for each medium that was characterized. Seven analytical suites within three major chemical groupings based on analytical protocol can be identified. The analytical suites are as follows:

Group A Compounds, TCL Volatiles

I. Ketones and Aldehydes
II. Monocyclic Aromatics
III. Chlorinated Aliphatics

Group B Compounds, TCL Semivolatiles

IV. Acid Extractables
V. Base Neutral Extractables

Group C Compounds, Pesticides/PCBs

VI. PCBs
VII. Pesticides

This exercise yields one of three possible outcomes:

1) **Case 1:** Chemicals within one or more analytical suites in a specified media have not been detected at a given detection limit.

2) **Case 2:** One or more chemicals from an analytical suite have been detected in a specified media either inconsistently or at low concentrations.

3) **Case 3:** Consistent detections of one or more chemicals from an analytical suite in a specified media.

Step 2: Evaluation of Results

Each of the cases identified above have implications with regard to the elimination of an analytical suite from the analytical program. In Case 1, a strong case can be made to eliminate the analytical suite provided the historical data are of adequate quality or useability, and are representative of the site. Data quality is assessed in accordance with the ER Program Quality Assurance Project Plan (QAPjP) and the General Radiochemistry and Analytical Services Protocol (GRAASP), and references therein. Evaluation of representativeness must include spatial considerations. For example, if the chemicals within one or more analytical suites were not detected, it is necessary to be sure all potential waste sources were investigated. For Case 3, continued monitoring for the analytical suite(s) in order to better characterize the medium is justified, particularly if the chemicals are mobile and toxic. Elimination of a suite of chemicals, where historical data fit Case 2, requires an assessment of data quality, spatial representativeness, temporal considerations (depending on the concentrations observed), chemical fate and transport, and human risks posed by the chemicals.

Assessment of chemical fate and transport and human/environmental risks is one of determining whether the chemical is at a concentration in a specific medium that poses an unacceptable risk to humans or the environment through a likely exposure pathway, and whether the chemical can migrate to another medium at concentrations that also pose an unacceptable risk.

Fate and Transport

Table 1 presents some of the relevant chemical/physical parameters that relate to the environmental fate and transport of representative chemicals from each of the analytical suites previously identified. The general tendency for chemicals from each group to migrate from one environmental medium to another is discussed below. This is summarized in Table 2.

Group A Compounds, TCL Volatile Organic Compounds

Generally, TCL volatiles have computed mobility indices that suggest high mobility in the environment. They are characterized by relatively high water solubility (greater that 100 milligrams per liter [mg/ℓ]) and volatility (vapor pressures generally much greater than 1 millimeter [mm] mercury and Henry's Law Constants greater than 0.1). Volatiles can be expected to migrate through soils, and to be transported by ground water and surface water as neutral solutes. This is denoted by the saturated zone retardation factors (Rds) between 1 and 50. (Note: chemical migration velocity = water migration velocity/Rd). The substantial vapor pressures and Henry's Law Constants suggest a tendency to volatilize from aqueous systems (including soil water) to the atmosphere.

Group B and C Compounds, Semivolatiles and Pesticides/PCBs

In general, semivolatiles and pesticides/PCBs are considered to be slightly to very immobile (pesticides and PCBs are particularly immobile). Again this is denoted by the high saturated zone retardation factors. Phenols are the most mobile of these compounds owing to their high water solubility. Semivolatiles and pesticides/PCBs exhibit low to negligible volatility as indicated by the very low vapor pressures and Henry's Law Constants. This suggests a low propensity for volatilization of these compounds to the atmosphere from soil and soil water.

Toxicity

Without the benefit of a risk assessment, it is necessary to rely on published acceptable concentrations for chemicals to estimate the risk posed by the various chemicals in each of the media they are found. Many of these published standards are considered Applicable or Relevant and Appropriate Requirements (ARARs). In this analysis, Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs) (an ARAR) and Action Levels under EPA's proposed RCRA Corrective Action Regulations (FR v.55, No. 145, July 27, 1990, 40 CFR 264.521) are used to provide an estimate of concentrations of chemicals that are protective of human health. The Action Levels are based on likely chemical exposure scenarios, a 10^{-6} incremental cancer risk (for carcinogens), or a no adverse health effect from a lifetime of exposure to a systemic contaminant (non carcinogen). MCLs and Action Levels used in this assessment are shown in Table 3.

FINDINGS

Data Considered in This Evaluation

Data for OU1 contained in the Rocky Flats Environmental Data Base System (RFEDS) were used to perform this evaluation. Data for the boreholes, ground-water wells, surface water stations, and sediment stations listed in Table 4 have been summarized in this document. This includes all existing soil/sediment data (including soil samples from the French Drain Geotechnical Investigation) and surface water and ground-water data collected through 1990 (and some more recent data).

Data Quality, Useability, and Representativeness

With the exception of the cases discussed below, soil and water quality data are either valid or acceptable with qualifications, based on limited data validation conducted in accordance with guidance provided in the QAPjP and GRAASP. With respect to both soils and ground water, high concentrations of acetone, butanone, and methylene chloride in the laboratory blanks for the 1986 and 1987 investigations render it impossible to ascertain their presence in samples as an indication of site contamination. Furthermore, volatile organic data for soils were rejected principally because of the high dilutions used (high detection limits). Since the 1986 and 1987 investigations, the sample collection methodology for volatiles in soils has been significantly improved to prevent volatile release during sample handling. Therefore, these soil data have little or no useability. In contrast, semivolatile and pesticide/PCB analyses of soils are valid or acceptable with qualifications based on the limited data validation. However, it is noted that the presence of phthalate esters in soil samples is presumed to be a result of sample contact with plastic during handling. This will be resolved during the Phase III investigation.

With respect to representativeness, the previous results are from boreholes, wells and surface water/sediment stations that span the entire OU. However, boreholes at OU1 did not penetrate all the IHSSs. Therefore, previous soil data cannot always be considered representative of buried wastes characteristics for all IHSSs. Also, ground-water and surface water semivolatile and pesticide/PCB data are based on one or two rounds. The impact of these observations are discussed further in the following section.

Results

Table 5 provides a tabulation of the total number of analyses (based on summing the number of analyses performed for each chemical within an analytical suite) for each analytical suite and the number of occurrences for which a chemical was detected. A detection is defined as all reported concentrations of a chemical, including those estimated below detection limits ("J" qualifier).

The conclusions drawn in this section regarding the elimination of analytical suites are generalized. Exceptions on a borehole, well, or station-specific basis are identified in the Conclusions. The rationale for these exceptions is also discussed.

Ground Water and Surface Water

Volatiles

As shown in Tables 6 and 7, volatiles are frequently detected and in significant concentrations. The chlorinated aliphatics occur often and occasionally at high concentrations. These compounds are known waste constituents and are relatively toxic. As a class, the volatiles represent Case 3.

However, the monocyclic aromatics (benzene, toluene, ethylbenzene, and xylene) occur infrequently. Toluene, ethylbenzene, and xylene occur at concentrations an order of magnitude below their health-based reference concentrations. Benzene occurs least frequently of the compounds in this class (only 2 occurrences in 426 total analyses). Only one of these occurrences (83 micrograms per liter [$\mu g/\ell$]) was above the health-based reference concentration (5 $\mu g/\ell$). The rare occurrence of benzene and other aromatics, combined with their low concentrations, warrants discontinuation of analysis for this class of compounds. Also note that the monocyclic aromatics are easily removed from water by activated carbon or air stripping, and therefore pose no unusual treatment requirements where ground water or surface water treatment will be necessary during remediation. Nevertheless, because the elimination of monocyclic aromatics from the TCL volatiles is not technically efficient, ground-water and surface water samples will be analyzed for monocyclic aromatics.

Acetone, and to a lesser extent other ketones, appear in the samples. However, the occurrence of acetone and 2-butanone in a sample is often due to laboratory contamination, and there are no occurrences of acetone or 2-butanone above their action levels. Concentrations of these ketones are generally two orders of magnitude less than the action level. Based on the high health-based reference concentrations (action levels) of acetone and 2-butanone, it can be surmised that ketones are relatively non-toxic, and the less frequent occurrence of other ketones at low concentrations is of little concern. Therefore, ketones could be eliminated from future analysis at OU1. However, like the monocyclic aromatics, there is little advantage in removing the ketones from the TCL volatile suite, and, therefore, ground-water and surface water samples will be analyzed for all TCL volatiles.

Semivolatiles (acid extractables)

As shown in Tables 8 and 9, out of 41 analyses for acid extractables, there have only been three detections of phenol and isolated detections of 2-nitrophenol, 4-nitrophenol, and 4-chloro-3-methylphenol within this analytical suite. The three detections of phenol are all estimated at 1 $\mu g/\ell$. The action level for phenol in water is 20,000 $\mu g/\ell$. The isolated occurrences of the other phenolic compounds are at estimated concentrations less than 3 $\mu g/\ell$. Although acid extractables have only been analyzed once at any given well or surface water station, there is no history of disposal of wastes containing acid extractable compounds. Also, considering the infrequent spatial occurrence and very low concentrations of acid extractables, elimination of this analytical suite from future water monitoring at OU1 is justified.

Semivolatiles (base neutral extractables)

As shown in Tables 10 and 11, base/neutral extractables rarely occur in water at OU1. The most frequently occurring compounds are phthalate esters, particularly bis(2-ethylhexyl) phthalate occurring at estimated concentrations below the detection limit, and near the action level of 3 $\mu g/\ell$ (Table 12). Phthalate esters are common laboratory contaminants, and bis(2-ethylhexyl)phthalate occurred in the blanks in one-half of the samples where this compound was detected ("B" qualifier).

N-nitrosodiphenylamine occurred second most frequently; however, this compound is also a known laboratory contaminant that leaches from the gas chromatograph column. (Note: the compound occurred in the laboratory blank in more than half the samples.) Furthermore, the concentrations of N-nitrosodiphenylamine are below or near the health-based reference concentration (7 $\mu g/\ell$).

The remaining few base neutral extractable compounds that were detected all occurred at surface water station SW-67. With the exception of acenephthene and pyrene, the compounds were not present up or downgradient of this location, and are not present in soils or sediments at OU1. Acenaphthene and pyrene are not considered site contaminants originating from historical waste disposal activities at OU1 (see discussion of semivolatiles in soils/sediments). The presence of the remaining few base neutral extractable compounds at this location at very low (estimated) concentrations, and below the health-based reference concentrations (where available) is probably not significant.

In general, none of the base neutral extractable compounds would be considered contaminants of concern from a human health risk assessment perspective owing to either their infrequent occurrence, low concentrations (estimated below detection limits), likelihood as a laboratory contaminant, or absence in soils and sediments. Further analysis for base neutral extractable compounds is not warranted during the Phase III RFI/RI.

Pesticides/PCBs

As shown in Tables 13, 14 and 15, pesticide occurrences in ground water and surface water are rare, and PCBs have never been observed. The pesticides that were observed include parathion in well 2-87 and endrin ketone in surface water stations SW-32, SW-33, and SW-34. The concentration of parathion is well below its action level, 200 $\mu g/\ell$. Because there is no record of disposal of pesticides at OU1, and pesticides occur infrequently and at low concentrations (PCBs have not been observed in water), the elimination of pesticide/PCB analysis from future ground-water and surface water monitoring at OU1 is justified.

Soils and Sediments

Volatiles

As shown in Tables 16, 17 and 18, like ground water and surface water, certain volatile organics occur in soils and sediments with high frequency and at high concentrations. As previously mentioned, the sampling technique for volatile organics has been modified to prevent volatile release during sample collection. This likely explains the more frequent occurrence (and at higher concentrations) of toluene in samples from the french drain investigation (Table 17) relative to the previous RI investigation (Table 16). Although the monocyclic aromatics and the ketones appear to occur at concentrations far below their acceptable concentrations, the actual concentrations in soils within IHSSs is not known. Elimination of monocyclic aromatics and ketones cannot be justified because the soil/sediment RI data is of little useability as a result of the sample collection issue. Therefore, the full suite of TCL volatiles will be analyzed for these media during the Phase III investigation.

Semivolatiles (acid extractables)

Out of 162 analyses for acid extractables, there are only three detections of chemicals in this class for soils/sediments at OU1 (Tables 19, 20, and 21). At SED002, 4-methylphenol and benzoic acid were detected at estimated levels, and at SED030, phenol was detected at an estimated level. The phenol concentration is far below its action level, and the absence of 4-methylphenol and benzoic acid in soil, ground water or surface water at OU1 implies the finding is not significant. Although phenol is mobile in the environment, water quality data do not support that it is capable of migrating into ground water or surface water at concentrations that would exceed its acceptable concentration, i.e., phenol was infrequently detected in the water, and only at 1 $\mu g/\ell$. Therefore, boreholes and sediment stations will not be analyzed for this class of compounds.

Semivolatiles (base neutral extractables)

There are frequent occurrences of base neutral extractables in soils/sediments at OU1 (Tables 22, 23, and 24). However, phthalate esters represent the majority of these occurrences. The presence of phthalate esters in samples is surmised to be due to field contamination from handling the samples with plastic gloves. Regardless, the concentrations of the phthalate esters are far below the acceptable concentration for bis(2-ethylhexyl) phthalate (assumed to be representative of the class). Also, phthalates are extremely immobile in the environment. This is demonstrated by the site data that show the infrequent occurrence of phthalates in water at OU1. Polynuclear aromatic hydrocarbons (PNAs) comprise the remainder of the occurrences of base neutral extractables in soils/sediments (Table 25). The occurrence of PNAs is infrequent, and with the exception of two samples (concentrations of 350 and 370 micrograms per kilogram [μg/kg]), concentrations of PNAs are below the detection limit of 330 μg/kg. Furthermore, of the boreholes where PNAs occur, only one borehole penetrates an IHSS (BH1287), and generally the PNAs are found in the composite samples that include the surface. Therefore, it is not likely that PNAs are associated with past disposal of waste at OU1, and are more likely associated with PNA deposition in the environment from other sources, e.g., burning of fossil fuels, fires, etc. PNAs are also immobile in the environment which is supported by the OU1 water quality data.

Pesticides/PCBs

Out of 161 analyses for pesticides/PCBs, there are only 3 occurrences of PCBs, and pesticides were not detected (Tables 26, 27, and 28). The concentrations of the PCBs are all below the action level of 90 μg/kg (Table 29), and occur ostensibly at random in three different boreholes. Also, PCBs are immobile in the environment.

CONCLUSIONS

The conclusions presented above that delineate retaining or deleting analytical suites from future monitoring of environmental media at OU1 are summarized in Table 30 and schematically presented in Figure 1. Elimination of certain analytical suites from future monitoring/characterization of the various media at this OU is well justified and will not compromise achieving the objectives of the Phase III RFI/RI. The future investigation activities will provide better characterization of the extent of contamination for those contaminants that are significant from a waste disposal and human health risk perspective.

Table 30 identifies exceptions to the categorical exclusion of analytical suites from future monitoring at OU1. For example, as shown in Table 31, several waste source boreholes have been proposed in IHSSs because previous drilling did not penetrate these waste sources. Therefore, these IHSSs are not chemically

characterized and these waste source borehole samples will be analyzed for all TCL organic compounds. Table 32 identifies other boreholes, wells, and surface-water stations where samples will be analyzed for all TCL organic compounds. The reasons for "fall-suite" analyses in these cases are characterization of upgradient ground water or surface water, or provision for complete characterization of some samples from major contaminant sources at OU1. If semivolatiles or pesticides/PCBs are detected at these IHSSs at significant levels, ground-water wells and surface water stations will be sampled and analyzed for these compounds at a later date, but prior to submittal of the Phase III RFI/RI report.

A significant component of the strategy outlined in this Technical Memorandum arises from the relationship between immobile compounds in soils and their potential impact on ground water. Table 2 illustrates that base-neutral extractables, pesticides, and PCBs are not expected to migrate from soils to ground water. Volatile organics are expected to migrate from soils to ground water. As a result, in some cases where paired soil and ground-water sampling are proposed, soils will be analyzed for fall-suites and the associated ground water will be analyzed for Volatile Organic Compounds.

Lastly, because CLP gas chromatograph/mass spectrometer (GC/MS) detection limits do not achieve "risk based" detection limits for some of the carcinogenic chlorinated solvents, EPA Method 502.2, which has detection limits as low as 0.5 $\mu g/\ell$, will be used for ground-water samples that are collected from wells near the edge of the plume. All surface water samples downgradient of OU1 will also be analyzed for volatiles using EPA Method 502.2. These surface water stations and ground-water wells coincide with all stations and wells downgradient of the proposed location of the french drain.

TABLE 1

CHEMICAL/PHYSICAL PARAMETERS AFFECTING
ENVIRONMENTAL FATE AND TRANSPORT
(See Notes)

Group A Compounds, TCL Volatile Organics

I Ketones & Aldehydes

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Acetone	55.1	0.1	270.00	0.013	60000.0	-0.24	-0.43	1.0	8	Extremely Mobile

II Monocyclic Aromatics

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Benzene	78.1	0.9	76.00	0.182	1780.0	2.13	1.81	6.8	3	Very Mobile
Toluene	92.1	0.9	22.00	0.214	515.0	2.79	2.48	28.0	2	Very Mobile
Ethyl Benzene	106.2	0.9	7	0.266	152.0	3.34	3.04	100.0	-0	Slightly Mobile
Xylene	106.2	0.9	10	0.380	152.0	3.13	2.11	12.6	1	Very Mobile

III Chlorinated Aliphatics

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Carbon Tetrachloride	153.8	1.6	90.00	0.960	785.0	2.96	2.64	40.5	2	Very Mobile
Trichloroethene	131.4	1.5	60.00	0.390	1100.0	2.42	2.10	12.3	3	Very Mobile
Chloroform	119.4	1.5	160.00	0.130	8000.0	1.97	1.64	4.9	4	Very Mobile
1,1,2,2-Trichloroethane	167.9	1.6	5.00	0.016	2900.0	2.39	2.07	11.6	2	Very Mobile

Table 1 (continued)

Group B Compounds, Semi Volatile Organics

IV Acid Extractables (Phenolics)

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Phenol	94.1	1.1	0.20	1.2E-04	8200.0	1.46	1.15	2.3	2	Very Mobile
Pentachlorophenol	266.4	2.0	1.1E-04	1.1E-04	14.0	5.18	4.72	4771.3	-8	Immobile
2,4-Dinitrophenol	184.1	1.7	1.5E-05	2.7E-08	5600.0	1.54	1.22	2.5	-2	Slightly Immobile
2,4,6-Trichlorophenol	197.5	1.5	0.012	1.6E-04	800.0	3.61	3.30	181.0	-2	Slightly Immobile

V Base-Neutral Extractables

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Bis(2-ethylhexyl)phthalate	391.1	1.0	2.7E-07	4.4E-06	1.3	9.61	9.30	1.8E+08	-16	Very Immobile
Chrysene	228.2	1.3	1.0E-11	6.9E-08	0.0	5.61	5.30	1.8E+04	-19	Very Immobile
1,2,4-Trichlorobenzene	181.5	1.5	0.29	9.6E-02	30	4.28	3.96	8.3E+02	-3	Slightly Immobile
1,3-Dichlorobenzene	147.0	1.3	2.28	1.5E-01	123	4.28	3.96	8.3E+02	-2	Slightly Immobile
Naphthalene	128.2	1.0	0.087	1.9E-02	31.7	3.29	2.97	8.6E+01	-3	Slightly Immobile
Benzo(a)pyrene	252.0	1.4	5.6E-09	2.0E-05	3.8E-03	6.06	6.74	5.0E+05	-17	Very Immobile

Group C Compounds, PCB's and Pesticides

VI PCB's

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
PCB-1248	299.5	1.4	4.9E-04	1.5E-01	0.054	5.76	5.44	24931.0	-10	Immobile
PCB-1254	328.4	1.5	7.7E-05	4.6E-02	0.0	6.03	5.72	47233.7	-11	Very Immobile
PCB 1260	375.7	1.6	4.1E-05	2.8E-01	0.0	7.15	6.82	594625.1	-14	Very Immobile

VII Chlorinated Pesticides

Chemical	Molecular Weight g/mole	Specific Gravity g/cc	Vapor Pressure mmHg	H Dimension-less	Water Solubility mg/l	Log Kow c/c	Log Koc ml/g	Saturated Zone Rd	Mobility Index MI	Env. Mobility
Dieldrin	381.0	1.8	1.8E-07	1.9E-05	0.2	3.54	3.23	153.8	-11	Very Immobile
DDT	375.7	1.6	1.9E-07	7.1E-04	5.5E-03	6.91	6.59	350141.6	-16	Very Immobile
Heptachlor	375.0	1.6	3.0E-04	3.4E-02	0.18	4.4	4.1	1081.0	-8	Immobile
Lindane	291.0	1.6	2.5E-05	2.5E-04	1.6	3.9	3.6	343.0	-8	Immobile
Chlordane	409.8	1.6	1.0E-05	4.0E-03	0.056	5.5	5.1	12601.0	-11	Very Immobile
Toxaphene	414.0	1.6	0.3	1.4E+01	0.5	3.3	3.0	87.8	-4	

TABLE 2

SUMMARY OF ENVIRONMENTAL
INTER-MEDIA MIGRATION
CHARACTERISTICS

Inter-Media Migration Characteristic	Aldehydes & Ketones	Monocyclic Aromatics	Chlorinated Aliphatics	Acid Extractables	Base-Neutral Extractables	PCB's	Pesticides
Soil to Groundwater	Yes	Yes	Yes	Yes	No	No	No
Soil or Soil Water to Air	No	Yes	Yes	No	No	No	No
Migration in Groundwater	Yes	Yes	Yes	Yes	No	No	No

TABLE 3

HEALTH-BASED REFERENCE CONTAMINANT CONCENTRATIONS

COMPOUND	MCL (µg/ℓ)	RCRA ACTION LEVEL	
		WATER (µg/ℓ)	SOIL (µg/kg)
Volatiles			
Benzene	5		
Ethylbenzene	700		8,000,000
Toluene	1,000		20,000,000
Xylene	10,000		
200,000,000			
Acetone		4,000	8,000,000
2-Butanone		2,000	4,000,000
Semivolatiles			
Bis(2-ethylhexyl)phthalate		3	50,000
Phenol		20,000	50,000,000
Pentachlorophenol		1,000	2,000,000
N-Nitrosodiphenylamine		7	100,000
1,2,4-Trichlorobenzene		700	2,000,000
1,4-Dichlorobenzene	7.5		
PCBs and Pesticides			
PCBs			90
Parathion		200	

TABLE 4

OU1 Boreholes, Ground-Water Wells, Surface Water and Sediment Stations

Boreholes	Ground-Water Wells	Surface Water Stations	Sediment Stations
1987 Investigation	Alluvial/Colluvial		
BH0187	0187	SW031	SD001
BH0287	5187	SW032	SD002
BH0387	5287	SW033	SD025
BH0487	0974	SW034	SD026
BH0587	1074	SW044	SD027
BH0687	6386	SW045	SD028
BH0787	6986	SW046	SD029
BH0887	0287	SW066	SD030
BH0987	0487	SW067	SD031
BH1087	0687	SW068	
BH1187	4387	SW069	
BH1287	4487	SW070	
BH1387	4787	SW071	
BH1487	4887	SW072	
BH1587	4987	SW126	
BH1687	5087		
BH1787	5387		
BH5787	5487		
BH5887	5986R		
BH5976	6486		
BH6187	6886		
BH6287	5587		
BH6387	5886		
French Drain Investigation	Bedrock		
0190-4290	5986		
	6286		
	0587BR		
	0387BR		
	4587BR		
	0887BR		

TABLE 5

Summary of Detected Compounds for
Operable Unit No. 1
Phase I and Phase II RIs

Matrix: Soil/Sediment

Analytical Suite	Hits / Analyses	Case	Comment
Pesticides/PCBs	3 / 4232	2	No History of Release at the Site
Acid Extractables	3 / 2572	1	No History of Release at the Site
Base-Neutral Extractables	208 / 8184	2	No History of Release at the Site Extremely Immobile in Soils
Volatile Organic Compounds	361 / 4955	3	Assumed to be Site-Related

Matrix: Ground Water/Surface Water

Analytical Suite	Hits / Analyses	Case	Comment
Pesticides/PCBs	4 / 1277	1	No History of Release at the Site
Acid Extractables	6 / 656	1	No History of Release at the Site
Base-Neutral Extractables	28 / 2192	2	No History of Release at the Site Extremely Immobile in Saturated
Volatile Organic Compounds	773 / 14,898	3	Assumed to be Site-Related

TABLE 6

OU1 GROUND WATER VOA SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,1,1-TRICHLOROETHANE	211	38	30250	UG/L	8452.95
2	1,1,2,2-TETRACHLOROETHANE	206	0	.		.
3	1,1,2-TRICHLOROETHANE	213	14	14740	UG/L	1130.07
4	1,1-DICHLOROETHANE	207	12	350	UG/L	148.50
5	1,1-DICHLOROETHENE	212	37	48000	UG/L	7300.19
6	1,2-DICHLOROETHANE	212	13	16000	UG/L	1271.38
7	1,2-DICHLOROETHYLENE	200	4	80	UG/L	54.00
8	1,2-DICHLOROPROPANE	207	0	.		.
9	2-BUTANONE	207	8	580	UG/L	80.87
10	2-HEXANONE	207	1	43	UG/L	43.00
11	4-METHYL-2-PENTANONE	207	1	25	UG/L	25.00
12	ACETONE	207	77	460	UG/L	40.71
13	BENZENE	207	2	83	UG/L	43.00
14	BROMODICHLOROMETHANE	207	0	.		.
15	BROMOFORM	207	0	.		.
16	BROMOMETHANE	207	0	.		.
17	CARBON DISULFIDE	207	8	8	UG/L	2.00
18	CARBON TETRACHLORIDE	212	41	28000	UG/L	2005.59
19	CHLOROBENZENE	206	0	.		.
20	CHLOROETHANE	206	0	.		.
21	CHLOROFORM	212	18	170	UG/L	51.44
22	CHLOROMETHANE	207	1	7	UG/L	7.00
23	DIBROMOCHLOROMETHANE	207	0	.		.
24	ETHYLBENZENE	207	4	6	UG/L	4.00
25	METHYLENE CHLORIDE	207	83	1500	UG/L	104.17
26	STYRENE	206	0	.		.
27	TETRACHLOROETHENE	212	55	13200	UG/L	2332.84
28	TOLUENE	208	20	270	UG/L	95.45
29	TOTAL XYLENES	207	4	2	UG/L	1.75
30	TRICHLOROETHENE	211	65	72000	UG/L	6020.71
31	VINYL ACETATE	207	1	8	UG/L	8.00
32	VINYL CHLORIDE	206	0	.		.
33	cis-1,3-DICHLOROPROPENE	208	0	.		.
34	trans-1,2-DICHLOROETHENE	14	1	42	UG/L	42.00
35	trans-1,3-DICHLOROPROPENE	207	0	.		.
		7081	508			

TABLE 7

OU1 SURFACE WATER VOA SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,1,1-TRICHLOROETHANE	231	2	4	UG/L	2.5000
2	1,1,2,2-TETRACHLOROETHANE	231	0	.		.
3	1,1,2-TRICHLOROETHANE	231	0	.		.
4	1,1-DICHLOROETHANE	231	0	.		.
5	1,1-DICHLOROETHENE	219	0	.		.
6	1,2-DICHLOROETHANE	231	0	.		.
7	1,2-DICHLOROETHYLENE	212	0	.		.
8	1,2-DICHLOROPROPANE	231	0	.		.
9	2-BUTANONE	237	23	24	UG/L	5.8261
10	2-HEXANONE	231	1	1	UG/L	1.0000
11	4-METHYL-2-PENTANONE	231	0	.		.
12	ACETONE	237	79	28	UG/L	5.3924
13	BENZENE	219	0	.		.
14	BROMODICHLOROMETHANE	231	0	.		.
15	BROMOFORM	231	0	.		.
16	BROMOMETHANE	231	0	.		.
17	CARBON DISULFIDE	231	1	1	UG/L	1.0000
18	CARBON TETRACHLORIDE	231	2	6	UG/L	4.0000
19	CHLOROBENZENE	219	0	.		.
20	CHLOROETHANE	231	0	.		.
21	CHLOROFORM	231	2	1	UG/L	1.0000
22	CHLOROMETHANE	231	2	2	UG/L	2.0000
23	DIBROMOCHLOROMETHANE	231	0	.		.
24	ETHYLBENZENE	231	0	.		.
25	METHYLENE CHLORIDE	242	131	38	UG/L	5.9542
26	STYRENE	231	0	.		.
27	TETRACHLOROETHENE	231	8	16	UG/L	3.3750
28	TOLUENE	219	5	12	UG/L	4.0000
29	TOTAL XYLENES	231	1	1	UG/L	1.0000
30	TRICHLOROETHENE	219	5	26	UG/L	10.0000
31	VINYL ACETATE	231	3	2	UG/L	1.3333
32	VINYL CHLORIDE	231	0	.		.
33	cis-1,3-DICHLOROPROPENE	231	0	.		.
34	trans-1,2-DICHLOROETHENE	19	0	.		.
35	trans-1,3-DICHLOROPROPENE	231	0	.		.
		7817	265			

TABLE 8
OU1 SURFACE WATER ACID EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	2,4,5-TRICHLOROPHENOL	3	0	.		.
2	2,4,6-TRICHLOROPHENOL	3	0	.		.
3	2,4-DICHLOROPHENOL	3	0	.		.
4	2,4-DIMETHYLPHENOL	3	0	.		.
5	2,4-DINITROPHENOL	3	0	.		.
6	2-CHLOROPHENOL	3	0	.		.
7	2-METHYLPHENOL	3	0	.		.
8	2-NITROPHENOL	3	1	3	UG/L	3
9	4,6-DINITRO-2-METHYLPHENOL	3	0	.		.
10	4-CHLORO-3-METHYLPHENOL	3	0	.		.
11	4-METHYLPHENOL	3	0	.		.
12	4-NITROPHENOL	3	1	2	UG/L	2
13	BENZOIC ACID	3	0	.		.
14	BENZYL ALCOHOL	3	0	.		.
15	PENTACHLOROPHENOL	3	0	.		.
16	PHENOL	3	1	1	UG/L	1
		48	3			

TABLE 9
OU1 SURFACE WATER ACID EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	2,4,5-TRICHLOROPHENOL	38	0	.		.
2	2,4,6-TRICHLOROPHENOL	38	0	.		.
3	2,4-DICHLOROPHENOL	38	0	.		.
4	2,4-DIMETHYLPHENOL	38	0	.		.
5	2,4-DINITROPHENOL	38	0	.		.
6	2-CHLOROPHENOL	38	0	.		.
7	2-METHYLPHENOL	38	0	.		.
8	2-NITROPHENOL	38	0	.		.
9	4,6-DINITRO-2-METHYLPHENOL	38	0	.		.
10	4-CHLORO-3-METHYLPHENOL	38	1	1	UG/L	1
11	4-METHYLPHENOL	38	0	.		.
12	4-NITROPHENOL	38	0	.		.
13	BENZOIC ACID	38	0	.		.
14	BENZYL ALCOHOL	38	0	.		.
15	PENTACHLOROPHENOL	38	0	.		.
16	PHENOL	38	2	1	UG/L	1
		608	3			

TABLE 10
OU1 GROUND WATER BASE NEUTRAL EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,2,4-TRICHLOROBENZENE	3	0	.		.
2	1,2-DICHLOROBENZENE	3	0	.		.
3	1,3-DICHLOROBENZENE	3	0	.		.
4	1,4-DICHLOROBENZENE	3	0	.		.
5	2,4-DINITROTOLUENE	3	0	.		.
6	2,6-DINITROTOLUENE	3	0	.		.
7	2-CHLOROETHYL VINYL ETHER	76	0	.		.
8	2-CHLORONAPHTHALENE	3	0	.		.
9	2-METHYLNAPHTHALENE	3	0	.		.
10	2-NITROANILINE	3	0	.		.
11	3,3'-DICHLOROBENZIDINE	3	0	.		.
12	3-NITROANILINE	3	0	.		.
13	4-BROMOPHENYL PHENYL ETHER	3	0	.		.
14	4-CHLOROANILINE	3	0	.		.
15	4-CHLOROPHENYL PHENYL ETHER	3	0	.		.
16	4-NITROANILINE	3	0	.		.
17	ACENAPHTHENE	3	0	.		.
18	ACENAPHTHYLENE	3	0	.		.
19	ANTHRACENE	3	0	.		.
20	BENZO(a)ANTHRACENE	3	0	.		.
21	BENZO(a)PYRENE	3	0	.		.
22	BENZO(b)FLUORANTHENE	3	0	.		.
23	BENZO(ghi)PERYLENE	3	0	.		.
24	BENZO(k)FLUORANTHENE	3	0	.		.
25	BIS(2-CHLOROETHOXY)METHANE	3	0	.		.
26	BIS(2-CHLOROETHYL)ETHER	3	0	.		.
27	BIS(2-CHLOROISOPROPYL)ETHER	3	0	.		.
28	BIS(2-ETHYLHEXYL)PHTHALATE	3	2	15	UG/L	8
29	BUTYL BENZYL PHTHALATE	3	0	.		.
30	CHRYSENE	3	0	.		.
31	DI-n-BUTYL PHTHALATE	3	1	1	UG/L	1
32	DI-n-OCTYL PHTHALATE	3	0	.		.
33	DIBENZO(a,h)ANTHRACENE	3	0	.		.
34	DIBENZOFURAN	3	0	.		.
35	DIETHYL PHTHALATE	3	0	.		.
36	DIMETHYL PHTHALATE	3	0	.		.
37	FLUORANTHENE	3	0	.		.
38	FLUORENE	3	0	.		.
39	HEXACHLOROBENZENE	3	0	.		.
40	HEXACHLOROBUTADIENE	3	0	.		.
41	HEXACHLOROCYCLOPENTADIENE	3	0	.		.
42	HEXACHLOROETHANE	3	0	.		.
43	INDENO(1,2,3-cd)PYRENE	3	0	.		.
44	ISOPHORONE	3	0	.		.
45	N-NITROSO-DI-n-PROPYLAMINE	3	0	.		.
46	N-NITROSODIPHENYLAMINE	3	2	12	UG/L	10
47	NAPHTHALENE	3	0	.		.
48	NITROBENZENE	3	0	.		.
49	PHENANTHRENE	3	0	.		.
50	PYRENE	3	0	.		.
		223	5			

TABLE 11
OU1 SURFACE WATER BASE NEUTRAL EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,2,4-TRICHLOROBENZENE	38	1	4	UG/L	4.00000
2	1,2-DICHLOROBENZENE	38	0	.		.
3	1,2-DIMETHYLBENZENE	41	0	.		.
4	1,3-DICHLOROBENZENE	38	0	.		.
5	1,4-DICHLOROBENZENE	38	1	4	UG/L	4.00000
6	2,4-DINITROTOLUENE	38	1	4	UG/L	4.00000
7	2,6-DINITROTOLUENE	38	0	.		.
8	2-CHLOROETHYL VINYL ETHER	66	0	.		.
9	2-CHLORONAPHTHALENE	38	0	.		.
10	2-METHYLNAPHTHALENE	38	0	.		.
11	2-NITROANILINE	38	0	.		.
12	3,3'-DICHLOROBENZIDINE	38	0	.		.
13	3-NITROANILINE	38	0	.		.
14	4-BROMOPHENYL PHENYL ETHER	38	0	.		.
15	4-CHLOROANILINE	38	0	.		.
16	4-CHLOROPHENYL PHENYL ETHER	38	0	.		.
17	4-NITROANILINE	38	0	.		.
18	ACENAPHTHENE	38	1	5	UG/L	5.00000
19	ACENAPHTHYLENE	38	0	.		.
20	ANTHRACENE	38	0	.		.
21	BENZO(a)ANTHRACENE	38	0	.		.
22	BENZO(a)PYRENE	38	0	.		.
23	BENZO(b)FLUORANTHENE	38	0	.		.
24	BENZO(ghi)PERYLENE	38	0	.		.
25	BENZO(k)FLUORANTHENE	38	0	.		.
26	BIS(2-CHLOROETHOXY)METHANE	38	0	.		.
27	BIS(2-CHLOROETHYL)ETHER	38	0	.		.
28	BIS(2-CHLOROISOPROPYL)ETHER	38	0	.		.
29	BIS(2-ETHYLHEXYL)PHTHALATE	38	12	4	UG/L	1.91667
30	BUTYL BENZYL PHTHALATE	38	0	.		.
31	CHRYSENE	38	0	.		.
32	DI-n-BUTYL PHTHALATE	38	0	.		.
33	DI-n-OCTYL PHTHALATE	38	0	.		.
34	DIBENZO(a,h)ANTHRACENE	38	0	.		.
35	DIBENZOFURAN	38	0	.		.
36	DIETHYL PHTHALATE	38	0	.		.
37	DIMETHYL PHTHALATE	38	0	.		.
38	FLUORANTHENE	38	0	.		.
39	FLUORENE	38	0	.		.
40	HEXACHLOROBENZENE	38	0	.		.
41	HEXACHLOROBUTADIENE	38	0	.		.
42	HEXACHLOROCYCLOPENTADIENE	38	0	.		.
43	HEXACHLOROETHANE	38	0	.		.
44	INDENO(1,2,3-cd)PYRENE	38	0	.		.
45	ISOPHORONE	38	0	.		.
46	N-NITROSO-DI-n-PROPYLAMINE	38	1	5	UG/L	5.00000
47	N-NITROSODIPHENYLAMINE	38	5	9	UG/L	5.00000
48	NAPHTHALENE	38	0	.		.
49	NITROBENZENE	38	0	.		.
50	PHENANTHRENE	38	0	.		.
51	PYRENE	38	1	4	UG/L	4.00000
		1969	23			

TABLE 12
OU1 SURFACE WATER AND GROUNDWATER BASE NEUTRAL EXTRACTABLE COMPOUND OCCURRENCES

LOCATION	SAMPLE NUMBER	ANALYTE	CONCENTRATION	UNIT	QUALIFIER	DETECTION LIMIT	VALIDATION CODE	COLLECTION DATE
SURFACE WATER								
SW067	SW067007	1,2,4-TRICHLOROBENZENE	4	UG/L	J	10		24-OCT-89
SW067	SW067007	1,4-DICHLOROBENZENE	4	UG/L	J	10		24-OCT-89
SW067	SW067007	2,4-DINITROTOLUENE	4	UG/L	J	10		24-OCT-89
SW067	SW067007	ACENAPHTHENE	5	UG/L	J	10		24-OCT-89
SW031	SW031007	BIS(2-ETHYLHEXYL)PHTHALATE	2	UG/L	JB	10		24-OCT-89
SW032	SW032007	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	JB	10		13-OCT-89
SW033	SW033007	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	JB	10		13-OCT-89
SW046	SW046007	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	J	10	A	19-OCT-89
SW066	SW066001	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	J	10		29-MAR-89
SW066	SW066002	BIS(2-ETHYLHEXYL)PHTHALATE	3	UG/L	J	10		17-MAY-89
SW066	SW066007	BIS(2-ETHYLHEXYL)PHTHALATE	2	UG/L	JB	10		24-OCT-89
SW067	SW067007	BIS(2-ETHYLHEXYL)PHTHALATE	2	UG/L	JB	10		24-OCT-89
SW068	SW068007	BIS(2-ETHYLHEXYL)PHTHALATE	3	UG/L	JB	10		24-OCT-89
SW069	SW069007	BIS(2-ETHYLHEXYL)PHTHALATE	4	UG/L	J	10	A	23-OCT-89
SW070	SW070001	BIS(2-ETHYLHEXYL)PHTHALATE	2	UG/L	J	10		29-MAR-89
SW070	SW070007D	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	J	10	A	23-OCT-89
SW067	SW067007	N-NITROSO-DI-n-PROPYLAMINE	5	UG/L	J	10		24-OCT-89
SW031	SW31088600	N-NITROSODIPHENYLAMINE	9	UG/L	JB	10	N	
SW032	SW032007	N-NITROSODIPHENYLAMINE	1	UG/L	J	10		13-OCT-89
SW032	SW32088600	N-NITROSODIPHENYLAMINE	5	UG/L	JB	10	N	
SW034	SW034007	N-NITROSODIPHENYLAMINE	1	UG/L	J	10		13-OCT-89
SW034	SW34088600	N-NITROSODIPHENYLAMINE	9	UG/L	JB	10	N	
SW067	SW067007	PYRENE	4	UG/L	J	10		24-OCT-89
GROUND WATER								
0487	4-87	BIS(2-ETHYLHEXYL)PHTHALATE	15.00	UG/L	B		N	14-OCT-87
6886	G688609860	BIS(2-ETHYLHEXYL)PHTHALATE	1	UG/L	J	10	N	
6886	G688609860	DI-n-BUTYL PHTHALATE	1	UG/L	J	10	N	
0974	G097408860	N-NITROSODIPHENYLAMINE	12	UG/L	B	10	N	
6886	G688609860	N-NITROSODIPHENYLAMINE	8	UG/L	J	10	N	

TABLE 13

OU1 GROUND WATER PESTICIDE/PCB SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	4,4'-DDD	4	0	.		.
2	4,4'-DDE	4	0	.		.
3	4,4'-DDT	4	0	.		.
4	ALDRIN	4	0	.		.
5	AROCLOR-1016	4	0	.		.
6	AROCLOR-1221	4	0	.		.
7	AROCLOR-1232	4	0	.		.
8	AROCLOR-1242	4	0	.		.
9	AROCLOR-1248	4	0	.		.
10	AROCLOR-1254	4	0	.		.
11	AROCLOR-1260	4	0	.		.
12	CHLORDANE	4	0	.		.
13	DIELDRIN	4	0	.		.
14	ENDOSULFAN I	4	0	.		.
15	ENDOSULFAN II	4	0	.		.
16	ENDOSULFAN SULFATE	4	0	.		.
17	ENDRIN	4	0	.		.
18	ENDRIN KETONE	4	0	.		.
19	HEPTACHLOR	4	0	.		.
20	HEPTACHLOR EPOXIDE	4	0	.		.
21	HEXAVALENT CHROMIUM	4	0	.		.
22	METHOXYCHLOR	4	0	.		.
23	PARATHION, ETHYL	13	1	0.06	UG/L	0.06
24	TOXAPHENE	4	0	.		.
25	alpha-BHC	4	0	.		.
26	beta-BHC	4	0	.		.
27	delta-BHC	4	0	.		.
28	gamma-BHC (LINDANE)	4	0	.		.
		121	1			

TABLE 14
OU1 SURFACE WATER PESTICIDE/PCB SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	4,4'-DDD	42	0	.		.
2	4,4'-DDE	42	0	.		.
3	4,4'-DDT	42	0	.		.
4	ALDRIN	42	0	.		.
5	AROCLOR-1016	42	0	.		.
6	AROCLOR-1221	42	0	.		.
7	AROCLOR-1232	42	0	.		.
8	AROCLOR-1242	42	0	.		.
9	AROCLOR-1248	42	0	.		.
10	AROCLOR-1254	42	0	.		.
11	AROCLOR-1260	42	0	.		.
12	CHLORDANE	3	0	.		.
13	DIELDRIN	42	0	.		.
14	ENDOSULFAN I	42	0	.		.
15	ENDOSULFAN II	42	0	.		.
16	ENDOSULFAN SULFATE	42	0	.		.
17	ENDRIN	42	0	.		.
18	ENDRIN KETONE	42	3	0.5	UG/L	0.23333
19	HEPTACHLOR	42	0	.		.
20	HEPTACHLOR EPOXIDE	42	0	.		.
21	HEXAVALENT CHROMIUM	7	0	.		.
22	METHOXYCHLOR	42	0	.		.
23	PARATHION, ETHYL	18	0	.		.
24	TOXAPHENE	42	0	.		.
25	alpha-BHC	42	0	.		.
26	alpha-CHLORDANE	39	0	.		.
27	beta-BHC	42	0	.		.
28	delta-BHC	42	0	.		.
29	gamma-BHC (LINDANE)	42	0	.		.
30	gamma-CHLORDANE	39	0	.		.
		1156	3			

TABLE 15
OU1 SURFACE WATER AND GROUND WATER PESTICIDE/PCB COMPOUND OCCURRENCES

LOCATION	SAMPLE NUMBER	ANALYTE	CONCENTRATION	UNIT	QUALIFIER	DETECTION LIMIT	VALIDATION CODE	COLLECTION DATE
SURFACE WATER								
SW032	SW032002	ENDRIN KETONE	0.10	UG/L	UJ	A 0.10	A	24-MAY-89
SW033	SW033002	ENDRIN KETONE	0.10	UG/L	UJ	A 0.10	A	24-MAY-89
SW034	SW034002	ENDRIN KETONE	0.50	UG/L	UJ	A 0.50	A	24-MAY-89
GROUND WATER								
0287	GW009291T	PARATHION, ETHYL	0.06	UG/L		0.01		07-MAR-91

TABLE 16

OU1 SOIL VOA SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,1,1-TRICHLOROETHANE	87	13	110	UG/KG	34.385
2	1,1,2,2-TETRACHLOROETHANE	87	0	.		.
3	1,1,2-TRICHLOROETHANE	87	3	27	UG/KG	13.667
4	1,1-DICHLOROETHANE	87	0	.		.
5	1,1-DICHLOROETHENE	87	1	8	UG/KG	8.000
6	1,2-DICHLOROETHANE	87	2	10	UG/KG	7.500
7	1,2-DICHLOROPROPANE	87	0	.		.
8	2-BUTANONE	87	29	390	UG/KG	94.172
9	2-HEXANONE	87	0	.		.
10	4-METHYL-2-PENTANONE	87	1	68	UG/KG	68.000
11	ACETONE	87	77	650	UG/KG	125.273
12	BENZENE	86	0	.		.
13	BROMODICHLOROMETHANE	87	0	.		.
14	BROMOFORM	87	0	.		.
15	BROMOMETHANE	87	1	6	UG/KG	6.000
16	CARBON DISULFIDE	87	0	.		.
17	CARBON TETRACHLORIDE	87	0	.		.
18	CHLOROBENZENE	87	0	.		.
19	CHLOROETHANE	87	0	.		.
20	CHLOROFORM	87	0	.		.
21	CHLOROMETHANE	87	0	.		.
22	DIBROMOCHLOROMETHANE	87	0	.		.
23	ETHYLBENZENE	87	0	.		.
24	METHYLENE CHLORIDE	87	85	590	UG/KG	42.801
25	STYRENE	87	0	.		.
26	TETRACHLOROETHENE	87	8	190	UG/KG	62.750
27	TOLUENE	87	2	25	UG/KG	15.500
28	TOTAL XYLENES	87	0	.		.
29	TRICHLOROETHENE	87	25	150	UG/KG	22.948
30	VINYL ACETATE	87	0	.		.
31	VINYL CHLORIDE	87	0	.		.
32	cis-1,3-DICHLOROPROPENE	87	0	.		.
33	trans-1,2-DICHLOROETHENE	87	1	18	UG/KG	18.000
34	trans-1,3-DICHLOROPROPENE	87	0	.		.
		2957	248			

TABLE 17

OU1 FRENCH DRAIN INVESTIGATION VOA SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,1,1-TRICHLOROETHANE	20	0	.		.
2	1,1,2,2-TETRACHLOROETHANE	20	0	.		.
3	1,1,2-TRICHLOROETHANE	20	0	.		.
4	1,1-DICHLOROETHANE	20	0	.		.
5	1,1-DICHLOROETHENE	18	0	.		.
6	1,2-DICHLOROETHANE	20	0	.		.
7	1,2-DICHLOROETHYLENE	20	0	.		.
8	1,2-DICHLOROPROPANE	20	0	.		.
9	2-BUTANONE	20	4	12	UG/L	5.500
10	2-HEXANONE	20	0	.		.
11	4-METHYL-2-PENTANONE	20	1	3	UG/L	3.000
12	ACETONE	21	6	10	UG/L	6.333
13	BENZENE	18	0	.		.
14	BROMODICHLOROMETHANE	20	0	.		.
15	BROMOFORM	20	0	.		.
16	BROMOMETHANE	20	0	.		.
17	CARBON DISULFIDE	20	0	.		.
18	CARBON TETRACHLORIDE	20	0	.		.
19	CHLOROBENZENE	18	0	.		.
20	CHLOROETHANE	20	0	.		.
21	CHLOROFORM	20	0	.		.
22	CHLOROMETHANE	20	0	.		.
23	DIBROMOCHLOROMETHANE	20	0	.		.
24	ETHYLBENZENE	20	0	.		.
25	METHYLENE CHLORIDE	21	12	26	UG/L	6.917
26	STYRENE	20	0	.		.
27	TETRACHLOROETHENE	20	0	.		.
28	TOLUENE	18	18	860	UG/L	225.111
29	TOTAL XYLENES	20	0	.		.
30	TRICHLOROETHENE	18	0	.		.
31	VINYL ACETATE	20	0	.		.
32	VINYL CHLORIDE	20	0	.		.
33	cis-1,3-DICHLOROPROPENE	20	0	.		.
34	trans-1,3-DICHLOROPROPENE	20	0	.		.
		672	41			

TABLE 18
OU1 SEDIMENT VOA SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,1,1-TRICHLOROETHANE	39	1	3	UG/KG	3.0000
2	1,1,2,2-TETRACHLOROETHANE	39	0	.		.
3	1,1,2-TRICHLOROETHANE	39	0	.		.
4	1,1-DICHLOROETHANE	39	0	.		.
5	1,1-DICHLOROETHENE	39	0	.		.
6	1,2-DICHLOROETHANE	39	0	.		.
7	1,2-DICHLOROETHYLENE	37	0	.		.
8	1,2-DICHLOROPROPANE	39	0	.		.
9	2-BUTANONE	39	2	100	UG/KG	58.0000
10	2-HEXANONE	39	0	.		.
11	4-METHYL-2-PENTANONE	39	0	.		.
12	ACETONE	39	23	480	UG/KG	68.8696
13	BENZENE	39	0	.		.
14	BROMODICHLOROMETHANE	39	0	.		.
15	BROMOFORM	39	0	.		.
16	BROMOMETHANE	39	0	.		.
17	CARBON DISULFIDE	39	1	6	UG/KG	6.0000
18	CARBON TETRACHLORIDE	39	0	.		.
19	CHLOROBENZENE	39	0	.		.
20	CHLOROETHANE	39	0	.		.
21	CHLOROFORM	39	1	18	UG/KG	18.0000
22	CHLOROMETHANE	39	3	60	UG/KG	46.3333
23	DIBROMOCHLOROMETHANE	39	0	.		.
24	ETHYLBENZENE	39	1	4	UG/KG	4.0000
25	METHYLENE CHLORIDE	39	27	54	UG/KG	13.2593
26	STYRENE	39	0	.		.
27	TETRACHLOROETHENE	39	0	.		.
28	TOLUENE	39	9	59	UG/KG	9.0000
29	TOTAL XYLENES	39	0	.		.
30	TRICHLOROETHENE	39	4	8	UG/KG	5.7500
31	VINYL ACETATE	39	0	.		.
32	VINYL CHLORIDE	39	0	.		.
33	cis-1,3-DICHLOROPROPENE	39	0	.		.
34	trans-1,2-DICHLOROETHENE	2	0	.		.
35	trans-1,3-DICHLOROPROPENE	39	0	.		.
		1326	72			

TABLE 19

OU1 SOIL ACID EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	2,4,5-TRICHLOROPHENOL	90	0	.		.
2	2,4,6-TRICHLOROPHENOL	90	0	.		.
3	2,4-DICHLOROPHENOL	90	0	.		.
4	2,4-DIMETHYLPHENOL	90	0	.		.
5	2,4-DINITROPHENOL	90	0	.		.
6	2-CHLOROPHENOL	90	0	.		.
7	2-METHYLPHENOL	90	0	.		.
8	2-NITROPHENOL	90	0	.		.
9	4,6-DINITRO-2-METHYLPHENOL	90	0	.		.
10	4-CHLORO-3-METHYLPHENOL	90	0	.		.
11	4-METHYLPHENOL	90	0	.		.
12	4-NITROPHENOL	90	0	.		.
13	BENZOIC ACID	90	0	.		.
14	BENZYL ALCOHOL	90	0	.		.
15	PENTACHLOROPHENOL	90	0	.		.
16	PHENOL	90	0	.		.
		1440	0			

TABLE 20

OU1 FRENCH DRAIN INVESTIGATION ACID EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	2,4,5-TRICHLOROPHENOL	55	0	.		.
2	2,4,6-TRICHLOROPHENOL	55	0	.		.
3	2,4-DICHLOROPHENOL	55	0	.		.
4	2,4-DIMETHYLPHENOL	55	0	.		.
5	2,4-DINITROPHENOL	55	0	.		.
6	2-CHLOROPHENOL	51	0	.		.
7	2-METHYLPHENOL	55	0	.		.
8	2-NITROPHENOL	55	0	.		.
9	4,6-DINITRO-2-METHYLPHENOL	55	0	.		.
10	4-CHLORO-3-METHYLPHENOL	51	0	.		.
11	4-METHYLPHENOL	55	0	.		.
12	4-NITROPHENOL	51	0	.		.
13	BENZOIC ACID	55	0	.		.
14	BENZYL ALCOHOL	55	0	.		.
15	PENTACHLOROPHENOL	51	0	.		.
16	PHENOL	51	0	.		.
		860	0			

TABLE 21

OU1 SEDIMENT ACID EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	2,4,5-TRICHLOROPHENOL	17	0	.		.
2	2,4,6-TRICHLOROPHENOL	17	0	.		.
3	2,4-DICHLOROPHENOL	17	0	.		.
4	2,4-DIMETHYLPHENOL	17	0	.		.
5	2,4-DINITROPHENOL	17	0	.		.
6	2-CHLOROPHENOL	17	0	.		.
7	2-METHYLPHENOL	17	0	.		.
8	2-NITROPHENOL	17	0	.		.
9	4,6-DINITRO-2-METHYLPHENOL	17	0	.		.
10	4-CHLORO-3-METHYLPHENOL	17	0	.		.
11	4-METHYLPHENOL	17	1	2200	UG/KG	2200
12	4-NITROPHENOL	17	0	.		.
13	BENZOIC ACID	17	1	390	UG/KG	390
14	BENZYL ALCOHOL	17	0	.		.
15	PENTACHLOROPHENOL	17	0	.		.
16	PHENOL	17	1	650	UG/KG	650
		272	3			

TABLE 22
OU1 SOIL BASE NEUTRAL EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,2,4-TRICHLOROBENZENE	90	0	.		.
2	1,2-DICHLOROBENZENE	90	0	.		.
3	1,3-DICHLOROBENZENE	90	0	.		.
4	1,4-DICHLOROBENZENE	90	0	.		.
5	2,4-DINITROTOLUENE	90	0	.		.
6	2,6-DINITROTOLUENE	90	0	.		.
7	2-CHLOROETHYL VINYL ETHER	87	0	.		.
8	2-CHLORONAPHTHALENE	90	0	.		.
9	2-METHYLNAPHTHALENE	90	0	.		.
10	2-NITROANILINE	90	0	.		.
11	3,3'-DICHLOROBENZIDINE	90	0	.		.
12	3-NITROANILINE	90	0	.		.
13	4-BROMOPHENYL PHENYL ETHER	90	0	.		.
14	4-CHLOROANILINE	90	0	.		.
15	4-CHLOROPHENYL PHENYL ETHER	90	0	.		.
16	4-NITROANILINE	90	0	.		.
17	ACENAPHTHENE	90	2	57	UG/KG	57.00
18	ACENAPHTHYLENE	90	0	.		.
19	ANTHRACENE	90	4	81	UG/KG	59.50
20	BENZO(a)ANTHRACENE	90	4	110	UG/KG	74.00
21	BENZO(a)PYRENE	90	1	130	UG/KG	130.00
22	BENZO(b)FLUORANTHENE	90	4	89	UG/KG	67.50
23	BENZO(ghi)PERYLENE	90	1	50	UG/KG	50.00
24	BENZO(k)FLUORANTHENE	90	3	180	UG/KG	97.67
25	BIS(2-CHLOROETHOXY)METHANE	90	0	.		.
26	BIS(2-CHLOROETHYL)ETHER	90	0	.		.
27	BIS(2-CHLOROISOPROPYL)ETHER	90	0	.		.
28	BIS(2-ETHYLHEXYL)PHTHALATE	90	88	7214	UG/KG	1255.05
29	BUTYL BENZYL PHTHALATE	90	0	.		.
30	CHRYSENE	90	4	150	UG/KG	88.75
31	DI-n-BUTYL PHTHALATE	90	22	3643	UG/KG	1078.86
32	DI-n-OCTYL PHTHALATE	90	2	250	UG/KG	210.00
33	DIBENZO(a,h)ANTHRACENE	90	0	.		.
34	DIBENZOFURAN	90	0	.		.
35	DIETHYL PHTHALATE	90	0	.		.
36	DIMETHYL PHTHALATE	90	0	.		.
37	FLUORANTHENE	90	5	350	UG/KG	238.00
38	FLUORENE	90	2	55	UG/KG	54.50
39	HEXACHLOROBENZENE	90	0	.		.
40	HEXACHLOROBUTADIENE	90	0	.		.
41	HEXACHLOROCYCLOPENTADIENE	90	0	.		.
42	HEXACHLOROETHANE	90	0	.		.
43	INDENO(1,2,3-cd)PYRENE	90	1	47	UG/KG	47.00
44	ISOPHORONE	90	0	.		.
45	N-NITROSO-DI-n-PROPYLAMINE	90	0	.		.
46	N-NITROSODIPHENYLAMINE	90	23	160	UG/KG	78.91
47	NAPHTHALENE	90	0	.		.
48	NITROBENZENE	90	0	.		.
49	PHENANTHRENE	90	6	370	UG/KG	199.50
50	PYRENE	90	5	270	UG/KG	202.00
		4497	177			

TABLE 23

OU1 FRENCH DRAIN INVESTIGATION BASE NEUTRAL EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,2,4-TRICHLOROBENZENE	51	0	.		.
2	1,2-DICHLOROBENZENE	55	0	.		.
3	1,2-DIMETHYLBENZENE	15	0	.		.
4	1,3-DICHLOROBENZENE	55	0	.		.
5	1,4-DICHLOROBENZENE	51	0	.		.
6	2,4-DINITROTOLUENE	51	0	.		.
7	2,6-DINITROTOLUENE	55	0	.		.
8	2-CHLOROETHYL VINYL ETHER	15	0	.		.
9	2-CHLORONAPHTHALENE	55	0	.		.
10	2-METHYLNAPHTHALENE	55	0	.		.
11	2-NITROANILINE	55	0	.		.
12	3,3'-DICHLOROBENZIDINE	55	0	.		.
13	3-NITROANILINE	55	0	.		.
14	4-BROMOPHENYL PHENYL ETHER	55	0	.		.
15	4-CHLOROANILINE	55	0	.		.
16	4-CHLOROPHENYL PHENYL ETHER	55	0	.		.
17	4-NITROANILINE	55	0	.		.
18	ACENAPHTHENE	51	0	.		.
19	ACENAPHTHYLENE	55	0	.		.
20	ANTHRACENE	55	0	.		.
21	BENZENAMINE	53	0	.		.
22	BENZIDINE	53	0	.		.
23	BENZO(a)ANTHRACENE	55	0	.		.
24	BENZO(a)PYRENE	55	0	.		.
25	BENZO(b)FLUORANTHENE	55	0	.		.
26	BENZO(ghi)PERYLENE	55	0	.		.
27	BENZO(k)FLUORANTHENE	55	0	.		.
28	BIS(2-CHLOROETHOXY)METHANE	55	0	.		.
29	BIS(2-CHLOROETHYL)ETHER	55	0	.		.
30	BIS(2-CHLOROISOPROPYL)ETHER	55	0	.		.
31	BIS(2-ETHYLHEXYL)PHTHALATE	55	10	1400	UG/G	298.1
32	BUTYL BENZYL PHTHALATE	55	0	.		.
33	CHRYSENE	55	0	.		.
34	DI-n-BUTYL PHTHALATE	55	0	.		.
35	DI-n-OCTYL PHTHALATE	55	0	.		.
36	DIBENZO(a,h)ANTHRACENE	55	0	.		.
37	DIBENZOFURAN	55	0	.		.
38	DIETHYL PHTHALATE	55	0	.		.
39	DIMETHYL PHTHALATE	55	0	.		.
40	FLUORANTHENE	55	0	.		.
41	FLUORENE	55	0	.		.
42	HEXACHLOROBENZENE	55	0	.		.
43	HEXACHLOROBUTADIENE	55	0	.		.
44	HEXACHLOROCYCLOPENTADIENE	55	0	.		.
45	HEXACHLOROETHANE	55	0	.		.
46	INDENO(1,2,3-cd)PYRENE	55	0	.		.
47	ISOPHORONE	55	0	.		.
48	N-NITROSO-DI-n-PROPYLAMINE	51	0	.		.
49	N-NITROSODIMETHYLAMINE	53	0	.		.
50	N-NITROSODIPHENYLAMINE	55	1	46	UG/G	46.0
51	NAPHTHALENE	55	0	.		.
52	NITROBENZENE	55	0	.		.
53	PHENANTHRENE	55	0	.		.
54	PYRENE	51	1	40	UG/G	40.0
		2860	12			

TABLE 24

OU1 SEDIMENT BASE NEUTRAL EXTRACTABLE SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	1,2,4-TRICHLOROBENZENE	17	0	.		.
2	1,2-DICHLOROBENZENE	17	0	.		.
3	1,3-DICHLOROBENZENE	17	0	.		.
4	1,4-DICHLOROBENZENE	17	0	.		.
5	2,4-DINITROTOLUENE	17	0	.		.
6	2,6-DINITROTOLUENE	17	0	.		.
7	2-CHLOROETHYL VINYL ETHER	2	0	.		.
8	2-CHLORONAPHTHALENE	17	0	.		.
9	2-METHYLNAPHTHALENE	17	0	.		.
10	2-NITROANILINE	17	0	.		.
11	3,3'-DICHLOROBENZIDINE	17	0	.		.
12	3-NITROANILINE	17	0	.		.
13	4-BROMOPHENYL PHENYL ETHER	17	0	.		.
14	4-CHLOROANILINE	17	0	.		.
15	4-CHLOROPHENYL PHENYL ETHER	17	0	.		.
16	4-NITROANILINE	17	0	.		.
17	ACENAPHTHENE	17	0	.		.
18	ACENAPHTHYLENE	17	0	.		.
19	ANTHRACENE	17	0	.		.
20	BENZO(a)ANTHRACENE	17	0	.		.
21	BENZO(a)PYRENE	16	0	.		.
22	BENZO(b)FLUORANTHENE	16	0	.		.
23	BENZO(ghi)PERYLENE	16	0	.		.
24	BENZO(k)FLUORANTHENE	16	0	.		.
25	BIS(2-CHLOROETHOXY)METHANE	17	0	.		.
26	BIS(2-CHLOROETHYL)ETHER	17	0	.		.
27	BIS(2-CHLOROISOPROPYL)ETHER	17	0	.		.
28	BIS(2-ETHYLHEXYL)PHTHALATE	16	7	1300	UG/KG	651.429
29	BUTYL BENZYL PHTHALATE	17	0	.		.
30	CHRYSENE	17	0	.		.
31	DI-n-BUTYL PHTHALATE	17	8	400	UG/KG	185.625
32	DI-n-OCTYL PHTHALATE	16	0	.		.
33	DIBENZO(a,h)ANTHRACENE	16	0	.		.
34	DIBENZOFURAN	17	0	.		.
35	DIETHYL PHTHALATE	17	0	.		.
36	DIMETHYL PHTHALATE	17	0	.		.
37	FLUORANTHENE	17	1	41	UG/KG	41.000
38	FLUORENE	17	0	.		.
39	HEXACHLOROBENZENE	17	0	.		.
40	HEXACHLOROBUTADIENE	17	0	.		.
41	HEXACHLOROCYCLOPENTADIENE	17	0	.		.
42	HEXACHLOROETHANE	17	0	.		.
43	INDENO(1,2,3-cd)PYRENE	16	0	.		.
44	ISOPHORONE	17	0	.		.
45	N-NITROSO-DI-n-PROPYLAMINE	17	0	.		.
46	N-NITROSODIPHENYLAMINE	17	2	260	UG/KG	220.000
47	NAPHTHALENE	17	0	.		.
48	NITROBENZENE	17	0	.		.
49	PHENANTHRENE	17	0	.		.
50	PYRENE	17	1	41	UG/KG	41.000
		827	19			

TABLE 25
OU1 SOIL POLYNUCLEAR AROMATIC COMPOUND OCCURENCES

LOCATION	SAMPLE NUMBER	ANALYTE	CONCENTRATION	UNIT	QUALIFIER	DETECTION LIMIT	VALIDATION CODE	COLLECTION DATE
BH0987	BH09870010	ACENAPHTHENE	57	UG/KG		J	N	
BH1587	BH15870005	ACENAPHTHENE	57	UG/KG		J	N	
BH0987	BH09870010	ANTHRACENE	74	UG/KG		J	N	
BH1587	BH15870005	ANTHRACENE	81	UG/KG		J	N	
BH1787	BH17870005	ANTHRACENE	46	UG/KG		J	N	
BH6387	BH638718UC	ANTHRACENE	37.00	UG/KG		JB	N	18-OCT-87
BH0987	BH09870010	BENZO(a)ANTHRACENE	84	UG/KG		J	N	
BH1287	BH128702CT	BENZO(a)ANTHRACENE	36.00	UG/KG		J	N	
BH1587	BH15870005	BENZO(a)ANTHRACENE	110	UG/KG		J	N	
BH1787	BH17870005	BENZO(a)ANTHRACENE	66	UG/KG		J	N	
BH0987	BH09870010	BENZO(b)FLUORANTHENE	61	UG/KG		J	N	
BH1287	BH128702CT	BENZO(b)FLUORANTHENE	34.00	UG/KG		J	N	
BH1587	BH15870005	BENZO(b)FLUORANTHENE	86	UG/KG		J	N	
BH1787	BH17870005	BENZO(b)FLUORANTHENE	89	UG/KG		J	N	
BH0487	BH04870010	FLUORANTHENE	290	UG/KG		J	N	05-JUN-87
BH0987	BH09870010	FLUORANTHENE	240	UG/KG		J	N	
BH1287	BH128702CT	FLUORANTHENE	110.00	UG/KG		J	N	
BH1587	BH15870005	FLUORANTHENE	350	UG/KG			N	
BH1787	BH17870005	FLUORANTHENE	200	UG/KG		J	N	
BH0987	BH09870010	FLUORENE	54	UG/KG		J	N	
BH1587	BH15870005	FLUORENE	55	UG/KG		J	N	
BH0987	BH09870010	INDENO(1,2,3-cd)PYRENE	47	UG/KG		J	N	
BH0487	BH04870010	PHENANTHRENE	210	UG/KG		J	N	05-JUN-87
BH0987	BH098706WT	PHENANTHRENE	35	UG/KG		J	N	
BH0987	BH09870010	PHENANTHRENE	310	UG/KG		J	N	
BH1287	BH128702CT	PHENANTHRENE	92.00	UG/KG		J	N	
BH1587	BH15870005	PHENANTHRENE	370	UG/KG			N	
BH1787	BH17870005	PHENANTHRENE	180	UG/KG		J	N	
BH0487	BH04870010	PYRENE	240	UG/KG		J	N	05-JUN-87
BH0987	BH09870010	PYRENE	250	UG/KG		J	N	
BH1287	BH128702CT	PYRENE	110.00	UG/KG		J	N	
BH1587	BH15870005	PYRENE	270	UG/KG		J	N	
BH1787	BH17870005	PYRENE	140	UG/KG		J	N	

TABLE 26
OU1 SOIL PESTICIDE/PCB SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	4,4'-DDD	85	0	.		.
2	4,4'-DDE	85	0	.		.
3	4,4'-DDT	85	0	.		.
4	ALDRIN	85	0	.		.
5	AROCLOR-1016	85	0	.		.
6	AROCLOR-1221	85	0	.		.
7	AROCLOR-1232	85	0	.		.
8	AROCLOR-1242	85	0	.		.
9	AROCLOR-1248	85	0	.		.
10	AROCLOR-1254	85	3	70	UG/KG	52.3333
11	AROCLOR-1260	85	0	.		.
12	CHLORDANE	85	0	.		.
13	DIELDRIN	85	0	.		.
14	ENDOSULFAN I	85	0	.		.
15	ENDOSULFAN II	85	0	.		.
16	ENDOSULFAN SULFATE	85	0	.		.
17	ENDRIN	85	0	.		.
18	ENDRIN KETONE	85	0	.		.
19	HEPTACHLOR	85	0	.		.
20	HEPTACHLOR EPOXIDE	85	0	.		.
21	METHOXYCHLOR	85	0	.		.
22	TOXAPHENE	85	0	.		.
23	alpha-BHC	85	0	.		.
24	beta-BHC	85	0	.		.
25	delta-BHC	85	0	.		.
26	gamma-BHC (LINDANE)	85	0	.		.
		2210	3			

TABLE 27
OU1 FRENCH DRAIN INVESTIGATION PESTICIDE/PCB SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	4,4'-DDD	56	0	.		.
2	4,4'-DDE	56	0	.		.
3	4,4'-DDT	51	0	.		.
4	ALDRIN	51	0	.		.
5	AROCLOR-1016	56	0	.		.
6	AROCLOR-1221	56	0	.		.
7	AROCLOR-1232	56	0	.		.
8	AROCLOR-1242	56	0	.		.
9	AROCLOR-1248	56	0	.		.
10	AROCLOR-1254	56	0	.		.
11	AROCLOR-1260	56	0	.		.
12	DIELDRIN	51	0	.		.
13	ENDOSULFAN I	56	0	.		.
14	ENDOSULFAN II	56	0	.		.
15	ENDOSULFAN SULFATE	56	0	.		.
16	ENDRIN	51	0	.		.
17	ENDRIN KETONE	56	0	.		.
18	HEPTACHLOR	51	0	.		.
19	HEPTACHLOR EPOXIDE	56	0	.		.
20	METHOXYCHLOR	56	0	.		.
21	TOXAPHENE	56	0	.		.
22	alpha-BHC	56	0	.		.
23	alpha-CHLORDANE	56	0	.		.
24	beta-BHC	56	0	.		.
25	delta-BHC	56	0	.		.
26	gamma-BHC (LINDANE)	51	0	.		.
27	gamma-CHLORDANE	56	0	.		.
		1482	0			

TABLE 28
OU1 SEDIMENT PESTICIDE/PCB SUMMARY

OBS	ANALYTE	RAWCOUNT	HITCOUNT	MAXVAL	MAXUNIT	AVEVAL
1	4,4'-DDD	20	0	.		.
2	4,4'-DDE	20	0	.		.
3	4,4'-DDT	20	0	.		.
4	ALDRIN	20	0	.		.
5	AROCLOR-1016	20	0	.		.
6	AROCLOR-1221	20	0	.		.
7	AROCLOR-1232	20	0	.		.
8	AROCLOR-1242	20	0	.		.
9	AROCLOR-1248	20	0	.		.
10	AROCLOR-1254	20	0	.		.
11	AROCLOR-1260	20	0	.		.
12	CHLORDANE	2	0	.		.
13	DIELDRIN	20	0	.		.
14	ENDOSULFAN I	20	0	.		.
15	ENDOSULFAN II	20	0	.		.
16	ENDOSULFAN SULFATE	20	0	.		.
17	ENDRIN	20	0	.		.
18	ENDRIN KETONE	20	0	.		.
19	HEPTACHLOR	20	0	.		.
20	HEPTACHLOR EPOXIDE	20	0	.		.
21	HEXAVALENT CHROMIUM	2	0	.		.
22	METHOXYCHLOR	20	0	.		.
23	TOXAPHENE	20	0	.		.
24	alpha-BHC	20	0	.		.
25	alpha-CHLORDANE	18	0	.		.
26	beta-BHC	20	0	.		.
27	delta-BHC	20	0	.		.
28	gamma-BHC (LINDANE)	20	0	.		.
29	gamma-CHLORDANE	18	0	.		.
		540	0			

TABLE 29
OU1 SOIL PESTICIDE/PCB OCCURRENCES

LOCATION	SAMPLE NUMBER	ANALYTE	CONCENTRATION	UNIT	QUALIFIER	DETECTION LIMIT	VALIDATION CODE	COLLECTION DATE
BH0987	BH098706WT	AROCLOR-1254	44	UG/KG			N	
BH1187	BH11870010	AROCLOR-1254	43	UG/KG			N	
BH1287	BH128702CT	AROCLOR-1254	70	UG/KG			N	

TABLE 30

SITE-SPECIFIC CHEMICAL ANALYSIS ROSTER

MATRIX	ANALYTICAL SUITES			
	Volatile Organics	Acid Extractables	Base/Neutral Extractables	Pesticides/ PCBs
Waste Sources	Yes [4]	No [2]	No [2]	No [2]
Soils/Sediments	Yes [3]	No [3]	No [3]	No [3]
Ground Water	Yes [3]	No [3]	No [3]	No [3]
Surface Water	Yes [3]	No [3]	No [3]	No [3]

Notes:

Case Determination:

[1] Case I

[2] Case II, however, further data required only for IHSSs that were not previously investigated (see Table 31).

[3] Case II, Supplemental Data Required as Identified in Table 32

[4] Case III, Data Required

TABLE 31

Source Characterization Boreholes For IHSSs Not Previously Drilled*

IHSS	Boreholes
Oil Sludge Pit Site (IHSS Ref. No. 102)	BH01 through BH09
Chemical Burial Site (IHSS Ref. No. 103)	BH10 through BH12
Liquid Dumping Site (IHSS Ref. No. 104)	BH13, BH14
Out Fall Site (IHSS Ref. No. 106)	BH19, BH20
Sanitary Waste Line Leak Site (IHSS Ref. No. 145)	BH48, BH49

*Samples from these boreholes will require analysis for all TCL organic compounds

TABLE 32
ADDITIONAL BOREHOLES, WELLS, AND SURFACE WATER STATIONS SCHEDULED FOR SAMPLING AND FULL-SUITE TCL ANALYSES*

SAMPLE LOCATION	RATIONALE
MW 20 – MW 23	Characterize upgradient ground water.
SW 35	Characterize upgradient surface water in South Interceptor Ditch.
SW 32	Characterize upgradient surface water in Woman Creek.
SW 45	Provide complete chemical characterization because this data does not currently exist.
BH 44	Provide complete chemical characterization for a subset of soil/waste samples from IHSS 130.
BH 28, BH 32	Provide complete chemical characterization for a subset of soil/waste samples from IHSS 119.9.
BH 34, BH 37	Provide complete chemical characterization for a subset of soil/waste samples from IHSS 119.2.
BH 17, BH 18	Proivde complete chemical characterization for a subset of soil/waste samples from IHSSs 105.1 and 105.2.

*Based on EPA/CDH comments and suggestions.

REFERENCES

EPA, 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA: OSWER Directive 9355.3—01.

EPA, 1989, Data Quality Objectives for Remedial Response Activities: OSWER Directive 9355.0-7B.

TECHNICAL MEMORANDUM 2

RESPONSES TO AUGUST 1, 1991 EPA COMMENTS ON THE OPERABLE UNIT NO. 1 RFI/RI WORK PLAN

ROCKY FLATS PLANT
ENVIRONMENTAL RESTORATION PROGRAM

U.S. Department of Energy
Rocky Flats Office
Golden, Colorado

20 August 1991

MAR- 9-93 TUE 12:55 EG&G ENV MGMT FAX NO. 3039668538 P. 03

TECHNICAL MEMORANDUM 2

RESPONSES TO AUGUST 1, 1991 EPA COMMENTS ON THE OPERABLE UNIT NO. 1 RFI/RI WORK PLAN

This Technical Memorandum presents DOE's response to the August 1, 1991 EPA comments on the Revised Phase III RFI/RI Work Plan for Operable Unit No. 1 (OU No. 1), 881 Hillside Area. The scope of this response is limited to the key EPA concerns identified in the cover letter to the comments. These concerns are as follows:

1) Soil scrape sampling should extend into Individual Hazardous Substance Site (IHSS) 130.

2) Contaminant particle size must be evaluated for the risk assessments.

3) Sampling must be conducted to characterize Non-Aqueous Phase Liquids (NAPLs) if present.

4) Adequate air monitoring must be in place for a complete evaluation of the air pathway in the risk assessment and environmental evaluation.

5) ARARs are to be evaluated as presented in the specific comments on Section 7 of the Work Plan.

6) Controls against laboratory contamination must be in place and previous data showing elevated concentrations of potential laboratory contaminants must be verified. Contamination not attributable to laboratory contamination must be considered as contamination from a waste source.

DOE has reviewed EPA's specific comments on the Work Plan and will address these comments in the RFI/RI Report. Each of the key concerns is subsequently discussed.

COMMENT:

1) *Soil scrape sampling should extend into Individual Hazardous Substance Site (IHSS) 130.*

RESPONSE:

Soil sampling to characterize the distribution of plutonium and americium in surficial soils will be conducted by collecting surface scrapes from 125 sectors identified in Figure 5-3 (Attached) Sectors 1 and 3 border IHSS 130 to the south and east, respectively. In order to characterize plutonium and americium in surficial soils at the IHSS, a soil scrape was taken from the location marked "C" on Figure 5-3. The sampling for spatial distribution of the actinides in the surficial soils in the OU No. 1 study area was completed on 12 August 1991.

MAR- 9-93 TUE 12:56 EG&G ENV MGMT FAX NO. 3039668538 P. 04

COMMENT:

2) Contaminant particle size must be evaluated for the risk assessments.

RESPONSE:

A particle size distribution analysis will be performed at 3 locations in OU No. 1 identified for profiling the vertical distribution of plutonium, americium, and uranium. This geotechnical test will be performed on samples from all vertical intervals. In addition, the concentrations of actinides within the sand, silt, and clay fractions will be analyzed for particular samples from these intervals including the top 3 centimeters.

COMMENT:

3) Sampling must be conducted to characterize Non-Aqueous Phase Liquids (NAPLs) if present.

RESPONSE:

Sampling will be performed on select wells within IHSS's 119.1, 119.2, and 105 to determine the presence of LNAPLs or DNAPLs, and if present, to chemically characterize the liquids. For example, the high concentrations of contaminants at well 9-74 within IHSS 119.1 suggest a potential for NAPLs, most likely DNAPLs as the chlorinated solvents have a specific gravity exceeding 1.0. Specially designed bailers will be used for sampling NAPLs. It should be noted, however, that previous EPA comments to the work plan make no reference to the need for specialized sampling for NAPLs.

COMMENT:

4) Adequate air monitoring must be in place for a complete evaluation of the air pathway in the risk assessment and environmental evaluation.

RESPONSE:

Based on the specific EPA comments, the concern over adequate air monitoring stems from a vagueness in the work plan on how the nature and extent of contamination via the air pathway will be analyzed. EPA also suggests the need for site specific air monitoring.

The contaminants of concern with respect to the air pathway are plutonium, americium, and uranium. These contaminants are toxic, present in surficial soils, and thus amenable to transport via the air pathway. The surficial soil sampling program will provide data on the distribution of plutonium, americium, and uranium in surface soils that has arisen from wind dissemination of contaminated dust. The Radioactive Ambient Air Monitoring Program (RAAMP) continuously monitors the ambient air within the Rocky Flats Plant property, and many locations in the surrounding environs. There are 51 high volume samplers within the RAAMP. Four of these samplers are located in the 881 Hillside Area (S-81A, S-81B, S-81C, and S-81D). Filters from these four high volume samplers are collected every 2 weeks, and composited for a monthly analysis for plutonium 238 and 239. Filters from the remaining samplers are collected and analyzed monthly for plutonium. Continuous meteorological monitoring is also performed to assess dust resuspension potential and provide supporting data for health and safety programs. There are proposed plans for the addition of uranium and americium to the RAAMP. Results from the soil and air sampling programs will provide for a complete evaluation of the air pathway in the risk assessment and environmental evaluation.

MAR- 9-93 TUE 12:56 EG&G ENV MGMT FAX NO. 3039668538 P.05

COMMENT:

5) *ARARs are to be evaluated as presented in the specific comments on Section 7.*

RESPONSE:

We have reviewed the EPA comments pertaining to ARARs. As suggested by EPA, the comments will be reflected in the RFI/RI report. Although DOE will address these comments in the RFI/RI report, it will be necessary to discuss these comments to resolve conceptual differences in advance of issuing the report.

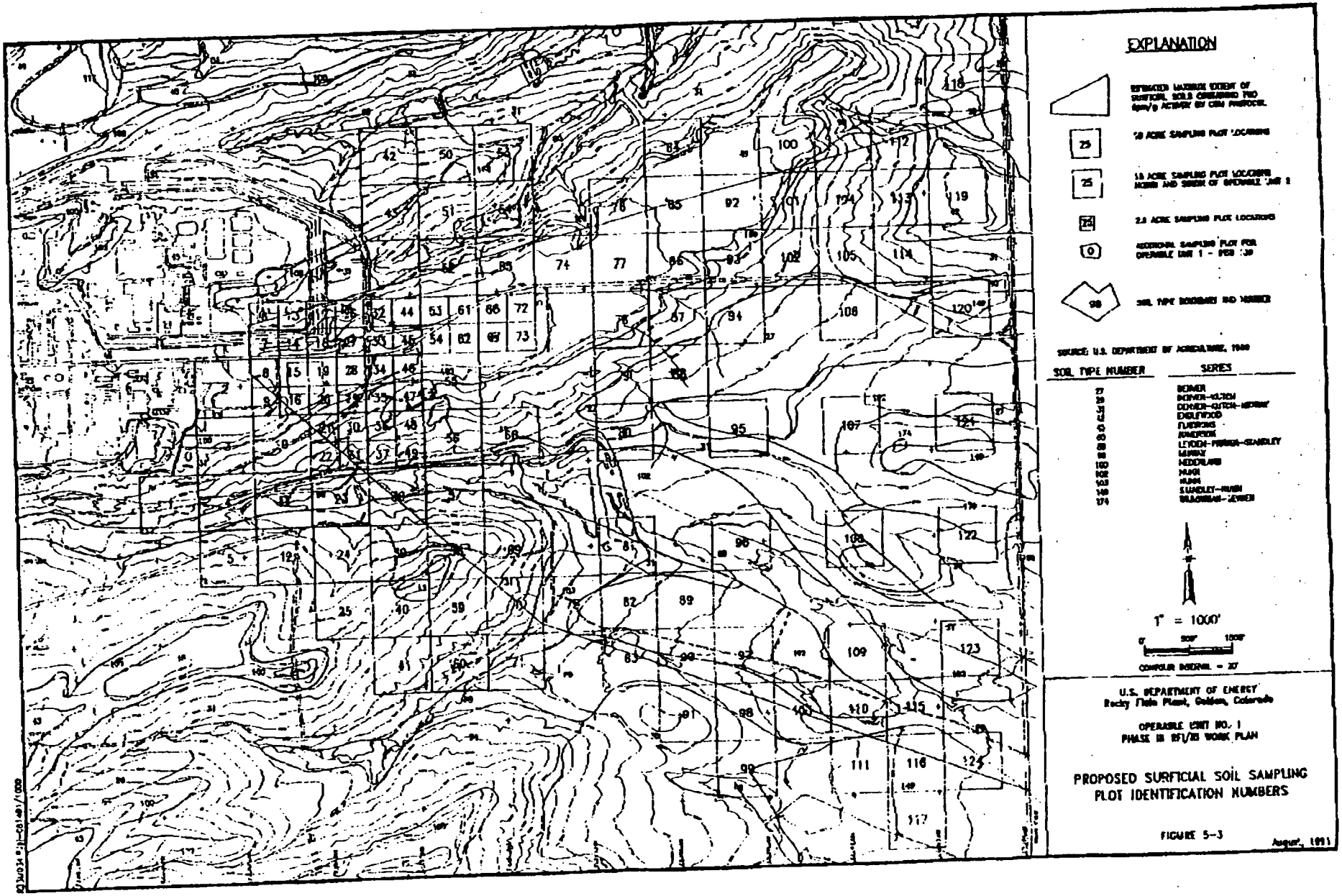
COMMENT:

6) *Controls against laboratory contamination must be in place and previous data showing elevated concentrations of potential laboratory contaminants must be verified. Contamination not attributable to laboratory contamination must be considered as contamination from a waste source.*

RESPONSE:

DOE is addressing both lab and field introduced contamination of samples collected during the field investigation. The laboratories that will be used for chemical analysis have a proven track record of minimizing lab-introduced contamination of the samples, and otherwise conform to the high QA/QC standards specified in the QAPJP. Field introduced contamination will also be minimized through strict adherence to the SOPs, and the potential for field introduced contamination will be assessed through the collection of trip and rinseate blanks. With respect to phthalates in soils, sampling technique modifications and new QC protocols are being developed to minimize any field introduced contamination, and to determine if phthalate contamination originates from sample handling and packaging. DOE agrees that the presence of contaminants in samples that cannot be attributable to laboratory contamination must be considered as originating from the waste sources under investigation.

MAR- 9-93 TUE 12:57 EG&G ENV MGMT FAX NO. 3039668538 P. 06


EXPLANATION
SOIL TYPE NUMBER
SERIES
1" = 1000'
U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado
OPERABLE UNIT NO. 1
PHASE III RFI/RI WORK PLAN
PROPOSED SURFICIAL SOIL SAMPLING
PLOT IDENTIFICATION NUMBERS
FIGURE 5-3
August, 1991

TECHNICAL MEMORANDUM 3

ADDENDUM TO
FINAL PHASE III RFI/RI WORK PLAN
MULTI-WELL PUMPING TEST PLAN
881 HILLSIDE AREA
(OPERABLE UNIT NO. 1)

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS PLANT
GOLDEN, COLORADO

ENVIRONMENTAL RESTORATION PROGRAM

NOVEMBER 1991

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1.0 PURPOSE AND SCOPE

This technical memorandum describes techniques that are specific to the multi-well (15 wellpoint array) pumping tests described in the Final Phase III RFI/RI Work Plan, Revision 1, March 1991 (Work Plan) for the 881 Hillside Area, Operable Unit 1 (OU1) at the Rocky Flats Plant (RFP). The technical memorandum is compatible with and complementary to Environmental Management Department (EMD) Groundwater Standard Operating Procedure (SOP) Aquifer Pumping Tests GW 2.08, Revision 0, dated October 29, 1991, and is intended to extend the general procedures described in that SOP to cover OU1-specific test requirements and modifications necessary to implement the scope of work described in the Work Plan.

The Work Plan proposes that three multi-well pumping tests be performed in the Woman Creek alluvium using a 15-wellpoint array to estimate the transmissivity and specific yield of the aquifer. The wellpoint array will also be used to perform multi-well tracer tests. Before the wellpoint array is installed, an exploratory soil boring will be advanced to determine site-specific hydrogeologic conditions. The 15-wellpoint array will then be installed and the pumping test conducted. This technical memorandum describes the equipment and procedures required for installation of the exploratory borings and wellpoint arrays and for performance of the pumping tests.

2.0 EQUIPMENT AND MATERIALS

The following is a list of equipment and materials needed to install the wellpoint array and to perform the multi-well pumping tests:

- Fifteen 1.5-inch-diameter stainless steel drive points, each having a sufficient length of well screen to fully penetrate the saturated thickness of the aquifer. Well screen length and slot size will be determined from site-specific hydrogeologic information obtained from drilling the exploratory borings in addition to wells previously installed in the vicinity of the proposed wellpoint array; 1.5-inch-diameter carbon steel blank casing for use in completion of the wellpoint from the top of the well screen to 1 foot above the ground surface

- Equipment and supplies for the installation and development of the wellpoint array consistent with procedures described in groundwater SOP GW 2.08
- Fifteen 5 psi pressure transducers with an accuracy of $\pm$ 0.14 inch
- One or more data loggers capable of recording 15 channels simultaneously
- Electronic water-level indicator graduated in hundredths of a foot
- Stop watch or clock readable to 1-second increments
- Reliable power source (5 kW generator or equivalent)
- Tank or drums in which to store both groundwater produced during the test and well development water
- Flow meter or other device for measurement of pump discharge rates in hundredths of a gpm
- Peristaltic pump with a minimum capacity of 0.05 gpm, intake and discharge lines
- Field notebook
- Field data sheets.

3.0 PROCEDURES

3.1 WELL INSTALLATION, COMPLETION, AND DEVELOPMENT

An exploratory boring will be drilled at each of the three multi-well test locations outside of the location of the proposed wellpoint array to determine site-specific hydrogeologic conditions. These include depth to water table, the depth to the base of the saturated alluvial aquifer, the initial saturated thickness of the aquifer, and grain size distribution of the aquifer materials. The boring will be advanced using continuous flight hollow stem augers (approximately 2.5-inch inside diameter), according to procedures described in SOP GT.02. Solid stem augers may be used to advance the boring or drive hole for the wellpoint in the event that boulders or cobbles are encountered. Visual logging and sieve analysis of the alluvial material will be performed according to SOPs GT.01 and GW 2.08. The boring will be abandoned according to SOP GT.05.

The 15 wellpoints will be installed in a three-well by five-well array such that the rows of five wells will be oriented perpendicular to the estimated direction of groundwater flow. The wells will be installed on approximately 2-foot centers within the array. Well locations may be modified based on conditions encountered during drilling. Each wellpoint will be installed by first boring a hole using hollow stem augers to within 1 foot of the water table elevation. The wellpoints will be inserted into the boreholes and then pushed or driven to final depth while held in a vertical orientation. Solid stem augers may be used to advance the boring or drive hole in the event that boulders or cobbles are encountered. Final depth will be such that the well screen of each wellpoint fully penetrates the saturated thickness of the aquifer and extends one foot above the water table. The wellpoints will be constructed using 1.5-inch-diameter stainless steel screens and carbon steel blank 1.5-inch-diameter casing. The annular space remaining around the blank well casing will consist of natural formation materials which will fill the annular space upon auger retrieval.

The wellpoints will be developed using methods described in SOP GW 2.08, or by other equivalent methods. Groundwater SOP GW 2.08 requires that a minimum of five well casing volumes be removed for well development. Well development will ensure that the natural formation materials disturbed by the wellpoint will be as representative as possible of the aquifer. After completion of the multi-well pumping tests and associated tracer tests, the wellpoints will be withdrawn from the ground and the remaining boreholes grouted and abandoned as described in SOP GT.05.

3.2 EQUIPMENT INSTALLATION AND INSTRUMENTATION

Following the installation and development of the wellpoint array according to SOPs GT.02 and GW 2.08, the aquifer will be allowed to return to an equilibrium hydraulic condition. Hydraulic equilibrium is the time at which the static water level returns to the elevation measured prior to well development. Water levels will be monitored and recorded before and during the aquifer pumping test using 5 psi pressure transducers with an accuracy of $\pm$ 0.14 inch installed in each well and connected to the data logger(s).

The central well of the 15-wellpoint array will be used as the pumping well during the test activities. All other wells will be used for observation of groundwater-level fluctuations. A teflon intake tube will be lowered into the pumping well to a depth of approximately 1 foot from the bottom of the screened interval. A peristaltic pump with a minimum capacity of 0.05 gpm will be attached to the intake tube, and will discharge through a flow meter to the produced water storage tank. The pump will be powered by a continuous power source during the test. The range of pumping capacities shall be sufficient to accommodate aquifer conditions during the testing activities.

All of the appropriate equipment listed in Section 2.0 shall be available during the test. All equipment used for the tests will be decontaminated according to SOP FO.03.

3.3 STEP-DRAWDOWN TEST PROCEDURES

Before the constant rate multi-well pumping test is performed, a step-drawdown test will be conducted according to SOP GW 2.08. The test will provide information on the efficiency of the pumping well and will be used to help establish the flow rate that can be sustained during the constant rate pumping test. The step-drawdown test shall consist of a minimum of five pumping rate steps to ensure a sufficient range of pumping rates are examined. The lowest pumping rate for the step test shall be 0.05 gpm or lower to ensure a sustainable flow rate. Four successively higher rates shall be used, which are 0.10, 0.15, 0.20, and 0.25 gpm. These rates were approximated using currently available information and estimated *in situ* hydrogeologic characteristics. Additional step drawdown tests may be required depending on results obtained with the pumping rates given here. Each pumping step should be of equal duration (approximately 0.5 to 2 hours) to simplify test analysis. The aquifer shall be allowed to return to hydrostatic conditions before the constant-rate test is performed.

During the step-drawdown test, water levels in the pumping well and observation wells will be collected by the pressure transducer/data logger system. A typical range of time intervals for water level measurements is given in Section 5.3.1 of SOP GW 2.08. In addition, time-

drawdown measurements will be collected manually at selected intervals to provide backup data. Other pertinent information including pumping rates and radial distance and direction from the pumping well to the observation wells will also be recorded. Test data will be recorded in the field notebook, on the field data sheets provided in SOP GW 2.08, and in the data logger files. The results of the test will be analyzed using methods referenced in SOP GW 2.08. A pumping rate will then be selected for use in the multi-well constant-rate pumping test based on drawdown curve calculations (Section 4.4).

3.4 MULTI-WELL CONSTANT RATE PUMPING TEST PROCEDURES

The constant-rate pumping test will be conducted by pumping the central well of the 15-wellpoint array at the constant flow rate determined from the results of the step-drawdown test. The pumping portion of the test will be followed immediately by the recovery portion of the test. The pumping period will have a minimum duration of 4 hours, and may last as long as 24 hours, depending on site-specific hydrogeologic conditions. The duration of the pumping test will be continued until a steady state condition is reached, where recharge of the aquifer equals the pumping rate. According to Kruseman and De Ridder (1989) equilibrium in some tests occurs within a few hours; however, in an unconfined aquifer the cone of depression expands slowly as the aquifer is being dewatered before steady state is reached. Therefore a longer pumping period may be required. The recovery period will be monitored until 90 percent of drawdown is recovered. The pumping test and recovery test will be performed according to SOP GW 2.08. Water produced during the test will be stored in a water tank or in drums and marked for disposal or used in the multi-well tracer test.

Water levels will be monitored in all wells both before and during the pumping and recovery portions of the test using the pressure transducer/data logger system. A typical range of time intervals for water level measurements is given in Section 5.3.1 of SOP GW 2.08. In addition, time-drawdown measurements will be collected manually at selected intervals to provide backup data. The times at which the pumping and recovery portions of the tests begin will be recorded. Flow rates will be measured to the nearest hundredth of a gpm and

will be recorded in conjunction with manual time-drawdown measurements. Information will be recorded in the field log book and on the appropriate field data sheets (see SOP GW 2.08).

Following completion of the pumping and recovery tests, the aquifer will be allowed to return to equilibrium conditions. The pressure transducers may be left in place for use in the associated multi-well tracer test, if that test is to be conducted shortly after the pumping test is complete. Any equipment that is removed will be decontaminated according to SOP FO.03 or disposed of properly.

3.5 DATA INTERPRETATION

The results of both the step-drawdown test and the constant-rate test shall be analyzed using methods referenced in SOP GW 2.08. The step-drawdown test results will be used to estimate a pumping rate for use in the constant-rate pumping test. The analysis methods used will be those that are appropriate to the tests and to site conditions.

4.0 DOCUMENTATION

Documentation for each pumping test described in this technical memorandum shall include the following information as a minimum:

- Aquifer test approval form (with approval obtained before the test is initiated)
- Field data sheets for each test that record pertinent groundwater levels, times, and flow rates
- All numerical and graphical analyses and calculations
- Data logger files of groundwater levels
- Field notebook entries that include as a minimum project name, observer's name, date, time, weather conditions, location and well identification numbers, distance between wells, time and date of relevant information or events (test startup, end, etc.), pumping rate, data logger and transducer serial numbers, assigned transducer channels, decontamination procedures, sampling, and other relevant information.

5.0 REFERENCES

The complete list of source references is cited in SOP GW 2.08.

TECHNICAL MEMORANDUM 4

ADDENDUM TO
FINAL PHASE III RFI/RI WORK PLAN
TRACER TEST PLAN
881 HILLSIDE AREA
(OPERABLE UNIT NO. 1)

U.S. DEPARTMENT OF ENERGY

ROCKY FLATS PLANT

GOLDEN, COLORADO

ENVIRONMENTAL RESTORATION PROGRAM

NOVEMBER 1991

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1.0 PURPOSE AND SCOPE

This technical memorandum describes techniques that are specific to the tracer tests described in the Final Phase III RFI/RI Work Plan, Revision 1, March 1991 (Work Plan) for the 881 Hillside Area, Operable Unit 1 (OU1) at the Rocky Flats Plant (RFP). The addendum is compatible with and complementary to Environmental Management Department (EMD) Groundwater Standard Operating Procedure (SOP) Tracer Tests GW 2.07, Revision 0, dated October 29, 1991, and is intended to extend the general procedures described in that SOP to cover OU1-specific test requirements and modifications necessary to implement the scope of work described in the Work Plan.

The Work Plan proposes that three multi-well tracer tests be performed in the Woman Creek alluvium. The Work Plan suggests that distilled water be used as a tracer in the *in situ* tracer tests, but allows for the use of an alternative, rhodamine WT dye, if this is found to be more appropriate. In consideration of the possibility that both of the proposed tracers may not be sufficiently conservative or detectable, the scope of work has been modified to include the assessment of distilled water, rhodamine WT dye, and potassium bromide as potential tracers in a tracer evaluation test. The results of the evaluation test will be used to select the most appropriate tracer for use. This technical memorandum describes equipment and procedures required for both the tracer evaluation test and the multi-well tracer tests.

2.0 EQUIPMENT AND MATERIALS

2.1 EQUIPMENT FOR TRACER EVALUATION TEST

Following wellpoint development and sampling, the tracer evaluation test will be conducted at a single wellpoint to assess the appropriateness of three different tracers for use in the multi-well tracer tests. The tracers to be evaluated are distilled water, rhodamine WT dye, and potassium bromide. Rhodamine WT dye and potassium bromide have been selected for these tests because of their conservative behavior, absence in the hydrogeologic environment, and ease of detection in aqueous samples. The results from *in situ* testing of each tracer will be

analyzed and the most effective tracer, in terms of its conservative nature and applicability, will then be selected for use in the multi-well tests.

2.1.1 Gradient Control and Sampling Equipment

The following is a general list of equipment needed to perform the *in situ* tracer tests:

- Reliable power source (5kw generator or equivalent)
- Polyethylene reservoir tank with sufficient volume to hold up to 30 gallons of tracer solution
- Tracer solution mixing equipment
- The selected tracer(s) including potassium bromide (2.5 kg) and rhodamine WT (100 g)
- Equipment to regulate the flow of tracer solution into the aquifer via the tracer injection/recovery well
- Flow meter or other means to measure the rate of solution inflow into the injection well
- Peristaltic sampling pump with a capacity range appropriate for the hydrologic conditions such as a Geotek 350 RPM variable speed pump or equivalent
- Automatic fraction collector with time-based and drop-based collection modes such as the Eldex universal fraction collector or equivalent
- Sample bottles or test tubes (to fit the fraction collector)
- Perforated 1/2-inch-diameter downhole teflon injection tube for tracer injection
- Five psi pressure transducer with an accuracy of $\pm$ 0.14 inch
- Data logger
- Electronic water level indicator graduated in hundredths of a foot
- Stop watch or clock readable to 1-second increments
- Wastewater storage tank or waste drums for excess produced and development water

- Adequate 1.5-inch-diameter stainless steel drive points, each having a sufficient length of well screen to fully penetrate the saturated thickness of the aquifer. Well screen length and slot size will be determined from site-specific hydrogeologic information obtained from drilling the exploratory borings in addition to wells previously installed nearby; 1.5-inch-diameter carbon steel blank casing for use in completion of the well point from the top of the well screen to 1 foot above the ground surface.

- Equipment and supplies for the drilling and development of the test well consistent with procedures described in groundwater SOP GW 2.08.

- Field notebook

- Field data sheets.

2.1.2 Field Tracer Analysis Equipment

The following is a general list of equipment and supplies needed to perform the tracer evaluation test for bromide:

- Portable field pH/ion-specific electrode meter

- Bromide ion-specific electrode

- Sodium nitrate (5 M $NaNO_3$) ionic strength adjustment solution (475 ml)

- Single-junction electrode internal filling solution

- Bromide (0.1 M KBr) activity calibration standard(s) (475 ml)

- Adaptor for standard electrode to BNC meter (optional)

- Reagent grade potassium bromide (KBr) (2.5 kg)

- Test tubes, sample bottles, or beakers

- Thermometer calibrated to $\pm$ 0.1°C full scale.

The following is a general list of equipment and supplies needed to perform the tracer evaluation test for rhodamine WT dye:

- Portable field fluorometer or spectrometer with a photomultiplier wavelength range of 254-650 nM such as the Turner Model 112 Digital fluorometer or equialent

- Calibration standard(s)
- Reagent grade rhodamine WT dye (100g)
- Test tubes, sample bottles, or beakers
- Thermometer calibrated to $\pm$ 0.1° full scale.

The following is a general list of equipment and supplies needed to perform the tracer evaluation test for distilled water:

- Portable field conductivity meter with temperature compensation capability
- Calibration standard(s)
- Distilled water (900 gallons)
- Flow-through conductivity cell and probe
- Test tubes, sample bottles, or beakers.

2.2 EQUIPMENT FOR MULTI-WELL TRACER TESTS

2.2.1 Gradient Control and Sampling Equipment

The equipment required for multi-well tracer tests includes all equipment listed in Section 2.1.1 for the single well tracer evaluation test with the following additions:

- Fourteen (15 total) 5 psi pressure transducers with an accuracy of $\pm$ 0.14 inch
- One or more data logger capable of recording 15 channels simultaneously
- Equipment to regulate flow of tracer solution into the five injection wells
- Four (5 total) perforated 1/2-inch-diameter downhole injection tubes for tracer injection
- Six (7 total) peristaltic sampling pumps

- Four (5 total) fraction collectors
- Four (5 total) flow meters or calibrated glassware to measure the rate of tracer solution inflow into injection wells.

2.2.2 Tracer Detection and Monitoring Equipment

The equipment required for detection and monitoring of the tracer during the multi-well tests will depend on the specific tracer that is selected from the results of the evaluation test. Equipment requirements for the three potential tracers are listed below:

- Bromide tracer:
  - Equipment listed in Section 2.1.2
    - Backup reference and ion-specific electrodes in addition to the ones listed
- Rhodamine WT dye tracer:
  - Equipment listed in Section 2.1.2
- Distilled water tracer:
  - Equipment listed in Section 2.1.2
  - Four (5 total) flow-through conductivity cells and probes.

3.0 PROCEDURES

3.1 TRACER EVALUATION TEST PROCEDURES

3.1.1 Test Well Installation, Completion, and Development

Based on the results of the exploratory borings drilled at each of the three test sites, one test location will be selected as a representative site for the tracer evaluation test. An approximate 8-inch-diameter borehole will be advanced using continuous flight hollow-stem augers to within one foot of the observed groundwater elevation at that location following procedures described in SOP GT.02. The well materials will consist of 1.5-inch-diameter stainless steel well screen of a length that is 1 foot greater than the estimated saturated aquifer thickness for that location. The well screen slot size will be determiend using the results of a

sieve analyses on aquifer meterials collected from the exploratory boring. A steel or stainless steel drive point will be affixed to the bottom of the screen to allow the well to be pushed or driven into place through the saturated aquifer materials. The remainder of the well will consist of 1.5-inch-diameter carbon steel blank casing from the top of the well screen to 1 foot above the ground surface. The wellpoint will be inserted to the bottom of the borehole through the augers. The wellpoint will be driven to a depth such that the base of the well screen is at the bottom of the saturated aquifer. The annulus space remaining around the blank well will consist of natural formation materials which will fill the annulus upon auger retrieval.

The well will be developed using methods described in SOP GW 2.08, or equivalent methods. Immediately after well development has been completed (including the removal of five casing volumes of groundwater), a water quality sample will be collected using methods described in SOP GW.06. This water sample will be analyzed in a laboratory for common ion chemistry (sodium, calcium, iron, silicon, aluminum, potassium, magnesium, manganese, bicarbonate, nitrate, sulfate, fluoride, chloride, bromide), total organic carbon, and total dissolved solids. Electrical conductivity and pH will be determined in the field. In addition, potassium bromide standards will be prepared and sent for confirmatory laboratory analysis prior to being used to develop a bromide calibration curve for analysis of bromide tracer test breakthrough data.

After the tracer evaluation test is complete, the wellpoint will be withdrawn from the ground and the remaining borehole will be grouted throughout its length according to SOP GT.05.

3.1.2 Equipment Installation and Instrumentation

Following the installation and development of the test well, the aquifer will be allowed to return to its prior hydrostatic conditions. A pressure transducer will be lowered to the bottom of the well screen and attached to a data logger to record groundwater levels to the nearest

0.01 foot and to confirm that equilibrium has been achieved. Water levels will be recorded both before and during the test.

The tracer reservoir and mixing equipment will be situated within several feet of the injection well and the injection tube will be inserted into the well so that the perforations are all within the screened interval. The injection tube will be connected to the reservoir via the supply line, which shall include an inline flow meter, flow regulation equipment, and a hand-operated valve.

For the withdrawal or tracer recovery portion of the test, the peristaltic sampling pump and fraction collector shall be available, as well as sample collection bottles or test tubes. All other test equipment listed in Sections 2.1.1 and 2.1.2 shall be available, appropriate to the nature of the tracer being tested.

3.1.3 Tracer Preparation

Based on the aquifer hydraulic properties as presented in the Work Plan, a total tracer solution injection volume of 30 gallons for each tracer tested should be adequate for the tracer evaluation test. The concentration of each tracer solution should be no less than two orders-of-magnitude greater than the estimated detection limit for the tracer as determined by the appropriate field tracer analysis method. For the distilled water tracer, pure distilled water will be used. The tracer in the reservoir will be thoroughly mixed by an electric stirring device before and during the test to ensure a uniform concentration.

3.1.4 Test Procedures

Before tracer solutions are introduced into the well, a series of short, constant-rate injection and withdrawal step-tests shall be conducted to evaluate the performance of the well and to help select optimum injection and withdrawal rates for the tracer test. The general procedure for a step-drawdown test (withdrawal) is described in SOP GW 2.08. Depending on site conditions, the lowest pumping rate should be 0.05 gpm or lower to ensure a sustainable flow

rate. After the step-drawdown test is complete and equilibrium conditions return, a step-injection test will be conducted by introducing potable water to the aquifer using the same flow-rate steps used in the step-drawdown test. The sustainable flow rate that will be selected from the results is one that will produce no significant change in saturated aquifer thickness (less that $\pm$ 10 percent) during the tracer test.

Tracer solution will be introduced into the well at a constant rate so that a significant rise in the water table (more than 10 percent of initial saturated aquifer thickness) will not occur. The injection will continue until the tracer solution reservoir is depleted. The flow rate, time, and water level will be recorded continuously or very frequently during the injection portion of the test by the pressure transducers to assure sufficient data are collected throughout for adequate analysis.

After the injection is complete, the intake of the peristaltic pump will be inserted into the well at an appropriate depth below the water table, and the well will be pumped at a rate equal to that of the injection. The well will be pumped at that rate until a volume of groundwater is removed that is twice the volume of injected tracer solution. During this period, the fraction collector will be used to collect samples of the recovered groundwater at defined regular and frequent intervals (30-second to 10-minute intervals) so that a minimum of 60 samples are collected during recovery.

After the recovery portion of the test has been completed, all equipment that was in contact with the tracer solution or groundwater will be decontaminated according to SOP FO.03. The groundwater level will be allowed to reach approximate equilibrium and the equipment will be redeployed. A second tracer solution will then be prepared and that tracer will be injected and recovered following the same procedures. These procedures will be repeated again for the third tracer to complete the tracer evaluation test.

The three tracers will be tested in the following order: 1) distilled water; 2) potassium bromide solution; and 3) rhodamine WT dye. If adequate information on material or trace dispersion in this aquifer is obtained during any stage of this test, the other planned tests may not be conducted. This sequence is expected to cause the least amount of interference among the three tracers tested. Samples collected by the fraction collector will be analyzed in the field upon collection to determine whether tracer breakthrough has occurred. The results will be plotted graphically to better understand the rate of change in tracer concentrations with time. Samples will be analyzed using the field analysis methods appropriate for each tracer as specified by the manufacturer, accepted scientific methodology and according to procedures described in the instrument instruction manuals.

Prior to the start of sample analysis, each instrument will be calibrated using commercially available stock standards and/or appropriate dilutions of traceable stock standards. The manufacturer's instructions will be followed for instrument calibration and use. The calibration results will be recorded in the field notebook. In the case of the bromide analyses, ion-specific electrode readings will be quantified using the bromide calibration curve developed during calibration and confirmed by laboratory analysis prior to the startup of the tracer test. A three-point calibration curve reflecting the range of bromide concentrations expected in the tracer samples will be used at a minimum. When rhodamine WT dye is used as a potential tracer, the fluorometer or spectrometer will be calibrated for the emission wavelength characteristic of the dye. Concentrations of the dye will be obtained from sample fluorescence readings quantified using the rhodamine WT calibration curve. When distilled water is used as a potential tracer, the specific conductance of tracer samples will be analyzed using a conductivity meter. Field specific conductance measurement procedures using a HACH Conductivity/TDS Meter (model 44600) are described in SOP GW.05. If an instrument other than the HACH meter is used, the manufacturer's instructions will be followed for calibration and analysis.

3.1.5 Data Interpretation

The results of the tracer evaluation tests for each of the tracers will be reduced and evaluated to select the most appropriate and detectable tracer for use in the multi-well tracer tests. Test results will be interpreted using the methods described in the references listed in GW 2.07 so that the most conservative and readily detected tracer can be selected for site conditions.

3.2 MULTI-WELL TRACER TEST PROCEDURES

The multi-well tracer tests will be conducted using the same 15-wellpoint array in which the multi-well pumping tests are conducted at each of the three test locations in the Woman Creek alluvium. The multi-well tracer tests will be performed as soon as possible after the pumping tests have been completed. In general, this should be possible as soon as groundwater levels return to their hydrostatic conditions. Following the completion of each tracer test, the 15-wellpoint array will be destroyed by extracting the wellpoints for reuse at the next multi-well array location.

The 15 wells will be arranged in a three-well by five-well array, with the long axis (five wells per row) oriented perpendicular to the direction of groundwater flow. In this arrangement, the five upgradient wells on one side of the array will be selected to serve as injection wells for the introduction of tracer into the aquifer. The five wells on the downgradient side of the array will serve as pumping or tracer recovery wells and the central row of five wells will serve as observation wells.

3.2.1 Equipment Installation and Instrumentation

The five upgradient wells will be instrumented as tracer solution injection wells, the middle row of five wells as observation wells, and the downgradient row of five wells as extraction wells. The tracer test will be conducted as a constant hydraulic gradient test with the continuous introduction of constant concentration tracer at the injection wells and the constant removal of groundwater at the extraction wells. Groundwater samples will only be collected

at the middle well of the injection well row, at the middle well of the middle well row, and at the three middle wells of the extraction well row (Figure 5-2 in the Work Plan).

All wells in the wellpoint array will be instrumented with a pressure transducer for water level measurement. The transducers will be connected to a multichannel data logger for recording of water levels before and during the tracer test. This information will be used to record test conditions and to determine any significant fluctuations in hydraulic gradient that may affect the test. It is likely that this transducer network will be in place following the multi-well pumping test.

The five injection wells will be equipped for injection of tracer through perforated injection tubes leading from the tracer solution reservoir via a distribution manifold. The line to each well will include an inline flow rate meter, a flow regulating device, and a manual valve to cut off flow. Each inline flow regulator will adjust flow so as to maintain a constant hydraulic head in the associated well. The inflow line from the tracer solution reservoir to the manifold will contain a manually operated valve to control or shut off flow.

The five down gradient extraction wells will each be equipped with an extraction peristaltic pump to maintain a constant drawdown condition in the associated well. Flow meters or other measurement devices will be installed to measure the rate of extraction from each well. Extracted water will be pumped to a wastewater storage reservoir or to waste drums for later handling.

A total of five fraction collectors will be used to collect water samples from the five wells designated for sampling. The wells that will be sampled are the middle well of the injection well row, the middle well of the middle or observation well row, and the three middle wells of the extraction well row. This pattern has been selected since it is believed that the major direction of dispersion will be parallel to the injector well. The middle injection well and the middle observation well will be equipped with peristaltic sampling pumps to supply the

fraction collectors for those wells. The three extraction wells to be sampled will already be equipped with peristaltic pumps because they are extraction wells. These pumps can be used to supply their corresponding fraction collectors. While the middle extraction well is expected to provide the most useful breakthrough data, the adjacent extraction wells will also be sampled to provide supplementary breakthrough information in case unusual conditions are encountered.

Water pumped from the aquifer during the multi-well pumping test will be stored on site in a tank for reuse during the preliminary portion of the tracer test. The water will be used to establish near steady-state hydrostatic conditions within ± 20 percent of original before tracer solution is injected into the aquifer.

3.2.2 Tracer Preparation

Based on the aquifer hydraulic properties presented in the Work Plan, a total tracer solution injection volume of 200 gallons should be adequate for each tracer test. However, the results of the multi-well pumping test shall be analyzed and the tracer volume reassessed based on the updated hydraulic properties before the tracer test is undertaken. The concentration of the selected tracer will be no less than two orders of magnitude greater than the estimated detection limit for the tracer as determined by the appropriate field tracer analysis method. The tracer solution in the reservoir will be mixed thoroughly by an electric stirring device before and during the test to ensure a uniform tracer concentration.

3.2.3 Test Procedures

Groundwater extracted and stored during the multi-well pumping test will be injected into the five injection wells so that the hydraulic head within each well is held constant at a level of 1 foot higher than the static water table ensuring that fluctuations in elevation are no more than ± 0.2 foot. The extraction wells will be pumped at a rate that will maintain groundwater elevations in each well at approximately static water levels (also ± 0.2 foot). When an approximate steady-state condition has been established, tracer solution will be introduced at a

constant rate at the five injection wells. The tracer will be injected continuously until breakthrough has been observed at the extraction wells. Breakthrough is estimated to occur in less than 20 hours under these conditions (see Work Plan).

The five sampled wells should be sampled at regular and frequent intervals (2- to 15-minute intervals) using pre-programmed sample fraction collectors. A minimum of 100 samples will be collected from each of the five sampled wells during the course of the test. The samples should be analyzed on a regular basis (every 2 to 4 hours) using the appropriate field analysis method to ascertain when breakthrough of the tracer has occurred. Samples will be analyzed using the field analysis instrument appropriate to the selected tracer and according to procedures described in the instrument instruction manual. All instruments will be calibrated according to the manufacturer's specifications and as briefly described in Section 4.1.4. The fraction collectors will be adjusted to collect the smallest reasonable sample upon which to perform field tracer analysis. Sampling will not remove sufficient groundwater volume to cause a significant deflection of groundwater flow around any sampled well. This will be monitored by continually evaluating the water levels in the surrounding wells to determine if decreases in water level occur during sampling.

Water level data will be collected and monitored frequently throughout the duration of the test. The water levels will be confirmed regularly by manual water level readings taken using electronic water level indicators. These data, as well as other pertinent information such as precipitation, will be logged regularly.

The tracer test can be terminated when 80 to 90 percent of the relative concentration of injected tracer has been recovered. It should be noted that due to the configuration of the wellpoint array and the location of the injection wells relative to the extraction wells, a portion of the injected tracer may not be recoverable. Therefore, professional judgement may have to be exercised as well as EG&G approval to determine the appropriate end to the test.

All groundwater produced during the test should be stored in a tank or in drums for later disposal as described in SOP FO.05. All equipment used should be discarded if disposable or decontaminated according to SOP FO.03.

After extraction and decontamination, the wellpoints used to form the wellpoint array will be extracted from the ground for possible reuse in the next multi-well pumping test and tracer test array. The remaining boreholes should be plugged with grout according to SOP GT.05.

3.2.4 Data Interpretation

The results of the multi-well tracer test will be analyzed using methods appropriate for the specific test conditions. Several methods of analysis are described in the source references listed in SOP GW 2.07.

4.0 SAMPLE HANDLING AND CONTROL

Groundwater samples and tracer standard solutions will be collected during the tracer evaluation test and the multi-well tracer tests. Samples to be submitted for laboratory analysis include tracer standard solutions and the groundwater sample collected at the site of the tracer evaluation test prior to the startup of this test. The analytes to be evaluated are described in Section 3.1.1 of this memorandum. If bromide is selected for the conduct of the multi-well tests, groundwater samples for confirmation of the bromide breakthrough curves will also be submitted for laboratory analysis. All other fluids will be analyzed in the field by appropriately calibrated instruments.

Samples to be submitted for laboratory analysis will be collected in precleaned sample containers. Appropriate preservatives will be added to the groundwater sample collected during the collection process to enable proper laboratory analysis. No other fluids will be preserved. The preservation requirements, holding times, and analysis methods for samples to be submitted to the laboratory will conform with those listed in the Site-Wide Quality Assurance Project Plan (QAPjP) for RFP, the Quality Assurance Addendum (QAA 1.1) for

OU1, and the Phase III RFI/RI Work Plan for OU1. Additional information on containerizing, preserving, handling, and shipping of water samples and tracer fluids is given in SOP FO.03 and SOP GW.06.

5.0 DOCUMENTATION

Documentation for each of the field tracer tests described in this technical memorandum will include the following information as a minimum:

- Tracer test approval form (with approval obtained before the test is initiated)
- Field tracer test data sheets that record pertinent water level, flow rate, specific conductance, tracer concentration, temperature, and instrument measurements for each test
- Data logger files of groundwater levels
- Field sample data sheets and chain-of-custody forms
- Field notebook entries that include as a minimum project name, observer's name, date, time, weather conditions, location, and well identification numbers, distances between wells, time and date of relevant information or events (such as test startup, end, etc.), tracer used, tracer concentration, flow rates, decontamination procedures, sampling, and other relevant information.
- Instrument calibration records and supporting data.

6.0 REFERENCES

The complete list of source references is cited in SOP GW 2.07.

DRAFT FINAL
TECHNICAL MEMORANDUM 5

ADDENDUM TO FINAL PHASE III
RFI/RI WORK PLAN

Surface Soil Sampling and Analysis Plan

Rocky Flats Plant
881 Hillside Area

(Operable Unit No. 1)

U.S. DEPARTMENT OF ENERGY

Rocky Flats Plant
Golden, Colorado

February 1992

REVIEWED FOR CLASSIFICATION
By
Date 2/10/92

DRAFT FINAL
TECHNICAL MEMORANDUM 5

ADDENDUM TO FINAL PHASE III
RFI/RI WORK PLAN

Surface Soil Sampling and Analysis Plan

Rocky Flats Plant
881 Hillside Area

(Operable Unit No. 1)

U.S. DEPARTMENT OF ENERGY

Rocky Flats Plant
Golden, Colorado

February 1992

SURFACE SOIL SAMPLING AND ANALYSIS PLAN

OPERABLE UNIT NO. 1

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Plate 1	Proposed Surface Soil Sampling Locations

LIST OF ACRONYMS

ANOVA	Analysis of Variance
BN/AE	Base Neutral/Acid Extractables
BW	Body Weight
CDH	Colorado Department of Health
CDI	Chronic Daily Intake
CLP	Colorado Laboratory Program
cm	centimeters
CSF	Carcinogenic Slope Factor
DI	Daily Intake
DOE	U.S. Department of Energy
dpm/kg	disentegrations per minutes per gram
DQOs	Data Quality Objectives
ED	Exposure Duration
EF	Exposure Frequency
EL	Exposure Limit
EMD	Environmental Management Division
EPA	Environmental Protection Agency
FS	Feasibility Study
g	gram
GC/MS	Gas Chromatograph/Mass Spectrometer
GRRASP	General Radiochemistry and Routine Analytical Services Protocol
HEAST	Health Effects Assessment Summary Tables
HI	Hazard Index
HQ	Hazard Quotient
IHSSs	Individual Hazardous Substance Sites
IR	Ingestion Rate
IRIS	Integrated Risk Information System
kg	kilogram

LCS	Laboratory Control Sample
mg/kg	milligrams per kilogram
mg/l	micrograms per liter
mg/m^3	milligrams per cubic meter
MS/MSD	Matrix spike/Matrix Spite Duplicate
NCP	National Contingency Plan
OU1	Operable Unit No. 1
OU2	Operable Unit No. 2
PAH	Polynuclear Aromatic Hydrocarbons
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCB	Polychlorinated Biphenyls
pCi	picoCuries
pCi/g	picoCuries per gram
QC	Quality Control
QAPjP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAS	Routine Analytical Services
RfD	Reference Dose
RFEDS	Rocky Flats Environmental Data Base System
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RI	Remedial Investigation
RPD	Relative Percent Difference
RME	Reasonable Maximum Exposure
SAP	Sampling and Analysis Plan
SID	South Interceptor Ditch
SOPs	Standard Operating Procedures
TAL	Target Analyte List
TCL	Target Compound List
TRU	Transuranic Waste
VOCs	Volatile Organic Compounds

SECTION 1
OBJECTIVES AND APPROACH

1.1 INTRODUCTION

The purpose of the Operable Unit No. 1 (OU1) surface soil sampling and analysis program is to determine the nature and extent of contamination in surface soils at and downslope of the operable unit for assessing potential human health risks from exposure to the soils. Recent review of the Phase III RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan (EG&G, 1991a) identified the absence of surface soil samples as a significant data gap for the conduct of the human health risk assessment. Secondary objectives for the surface soil sampling program is to provide supporting data for the environmental evaluation and allow assessment of remedial alternatives for clean-up of the contaminated soils in accordance with the National Contingency Plan (NCP). Risks will be presented in the OU1 Baseline Risk Assessment, and remedial alternatives will be developed and evaluated in the Feasibility Study (FS). Remedial alternatives will address remediation of all contaminated soils (surface and subsurface), ground water, surface water, and sediments at OU1 as necessary.

The Phase III RFI/RI Work Plan (EG&G, 1991a) identifies the locations of numerous boreholes within OU1 (881 Hillside Area) that were drilled and sampled to characterize the nature and extent of contamination in the overburden materials (Figure 1-1). In general, the data generated by this OU1 soil sampling program (Technical Memorandum 5) will be adequate to determine the volume of contaminated soil requiring remediation, and, therefore, will be suitable for evaluating remedial alternatives in the FS. However, the uppermost soil sample collected from a borehole is a six foot composite which includes the ground surface (EG&G, 1991a) and therefore the Phase III Work Plan is inadequate in addressing surface soil (upper two inches of soil profile) contamination. Data from these samples will not be representative of surface soil contamination. The Phase III Work Plan Field Sampling Plan does not address sampling of the surface soils specifically other than the actinides sampling program addressed below. Surface soil characterization is necessary to evaluate human health and environmental risks for the risk assessment from a variety of exposure pathways including direct contact, incidental ingestion,

Figure 1-1

and inhalation. Furthermore, the results of the surface soil sampling program may indicate a need to remove and/or remediate surface soils at OU1. This exercise is not intended to support the environmental evaluation for OU1, but may provide useful information for the study.

A detailed surficial soil sampling program to investigate actinide contamination at Rocky Flats is in progress. This program includes surface soils at OU1 and is discussed further in Section 2.1.1. Data from this program will be available for incorporation into the OU1 RFI/RI report. However, this program does not investigate non-radioactive contamination at OU1.

Section 1 of this sampling and analysis plan provides background information and data for OU1, a site conceptual model, and a discussion of Data Quality Objectives (DQOs) for the program. Section 2 presents the Sampling and Analysis Plan (SAP), and Section 3 discusses Quality Assurance/Quality Control (QA/QC) considerations. This work plan supplements the Phase III RFI/RI Work Plan for OU1 (EG&G, 1991a).

1.2 DQO PROCESS

The primary objective of a Remedial Investigation (RI) is to collect data necessary to determine the nature, distribution, and migration pathways of contaminants in support of the baseline risk assessment as well as to support the evaluation of remedial alternatives. DQOs are qualitative and quantitative statements which specify the quality of the data required to support a RI (EPA, 1987). DQOs should be specified for each data collection activity and the work should be conducted and documented in a manner that ensures that sufficient data of known quantity and quality are collected to support remedial action selection decisions (EPA, 1987). DQOs are developed using the three stage process described in the following sections as tailored to the surface soil sampling program.

1.2.1 Stage 1 — Decision Types

Stage 1 of the DQO process involves the identification and involvement of data users (Section 1.2.1.1), development of the site conceptual model (Section 1.2.1.3), and definition of

objectives and decision types that will be made during the RI process (Section 1.2.1.4). Available existing data must also be obtained and evaluated during this stage to aid in the DQO process in order to develop a conceptual model of the study area (EPA, 1987). The conceptual model identifies suspected sources, contaminant pathways, and potential receptors. The primary focus of the activities conducted during Stage 1 of the DQO process is to identify why new data are needed.

1.2.1.1 Data Users

Physical and chemical data on the surface soils will be used by the U.S. Department of Energy (DOE) for site characterization, and preparation of the Baseline Risk Assessment and FS. As such, the primary data users will be risk assessment scientists, statisticians, and feasibility study engineers. If detailed information is necessary for remedial design/remedial action, it will be collected as needed.

1.2.1.2 Current Understanding of Nature and Extent of Contamination

Site Location and Description

The 881 Hillside Area is located on the south side of the Rocky Flats Plant security area. These sites were designated high priority sites because of their suspected relationship to ground-water contamination (DOE, 1987). There are 12 sites designated as Individual Hazardous Substance Sites (IHSSs) within OU1. Several sites are included in the area because of their physical proximity to each other. Figure 1-2 shows the location of OU1 and the IHSS locations. Table 1-1 summarizes the disposal history for each of the IHSSs as well as the suspected contaminant classes that may be present. The majority of the IHSSs are disposal sites which involved the shallow burial of wastes in pits covered by fill. More specifically, three of the disposal sites (IHSS 102, 103, and 104) were pits used for burial of wastes. IHSS 105.1 and 105.2 are out-of-service fuel oil tanks which were closed in place by filling the tanks with asbestos containing material and concrete in 1976. There are also several sites which represent surface drum storage sites for hazardous, low level mixed, or mixed transuranic (TRU) wastes

Figure 1-2

Table 1-1

Operable Unit No. 1
Waste Disposal History

IHSS NO./NAME	DISPOSAL HISTORY	POTENTIAL SITE CONTAMINANT CLASSES*	POTENTIAL FOR SURFACE SOIL CONTAMINATION
102/Oil Sludge Pit Site	30-50 drums of oil sludge from fuel oil tanks disposed in a pit in late 1950's.	Oil and Grease; VOCs; Radionuclides	None due to burial beneath fill.
103/Chemical Burial Site	Burial of unknown chemicals in circular pit (approximately 1963).	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	None due to burial beneath fill.
104/Liquid Dumping Site	Pit for disposal of unknown liquids and empty drums prior to 1969.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	None due to burial beneath fill.
105.1 And 105.2/ Out-of-Service Fuel Oil Tanks	1958-1976: Tanks were filled with asbestos contaminating material and then with concrete; tanks tested tight in 1973.	Oil and Grease; VOCs; Radionuclides	None due to burial beneath fill.
106/Outfall Site	6-inch diameter vitrified clay pipe which discharged water in December 1977; pipe is either a cleanout pipe for an overflow line from 881 cooling tower or overflow line from the sanitary sewer sump in Building 881.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	Yes - outfall discharge
107/Hillside Oil Leak Site	Oil leak from the 881 Building footing drain outfall in May 1973; ditch and concrete skimming pond were built to contain leak.	Oil and Grease; VOCs; Radionuclides; Pesticide/PCBs	Yes - leak site. However, the area has been covered with concrete, therefore, no surface soil to sample.
119.1 And 119.2/Multiple Spill Sites	1967: Barrel storage; unknown quantities and types of solvents and waste; barrels removed by 1972.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	Yes - surface spill sites

Table 1-1 (Continued)

Operable Unit No. 1
Waste Disposal History

IHSS NO./NAME	DISPOSAL HISTORY	POTENTIAL SITE CONTAMINANT CLASSES*	POTENTIAL FOR SURFACE SOIL CONTAMINATION
130/Radioactive Site 800 Area #1	1969-1972: Soil and asphalt contaminated with plutonium from: 1) 1969 fire; buried under 1-2' of fill. 2) Radionuclides from Central Avenue; quantity and concentrations unknown. 3) Soil removed from around the 774 Building process waste tanks; covered with approximately 3 feet of fill.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	Yes - Potential for uncovering near surface buried wastes.
145/Sanitary Waste Line Leak Site	4-inch cement asbestos sanitary sewer line south of Building 881 leaked in January 1981; low level radionuclides from laundry until 1973 then only sanitary wastes.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	None due to leakage within a buried waste line.
177/Building Drum Storage Site	Satellite collection and 90-day accumulation of RCRA regulated wastes.	VOCs; BNAs; Metals; Radionuclides; Pesticide/PCBs	Yes - surface storage area for regulated waste; however, this IHSS is being investigated under OU15 RCRA closure.

* Listed contaminant classes do not necessarily indicate expected presence of these parameters in the wastes. A comprehensive list is provided for IHSSs used as disposal sites for unknown quantities and types of substances.

Source: EG&G, 1991b

(IHSS 177, 119.1, and 119.2) and areas identified as leak or discharge points (IHSS 106, 107, and 145). Radioactive Site 800 Area #1 (IHSS 130) is a disposal site which involved the burial of radioactive soil and debris.

Nature and Extent of Contamination

Sites at the 881 Hillside Area were selected as High Priority Sites as a result of Plant-wide characterization activities which showed elevated concentrations of volatile organic compounds (VOCs) in ground water upgradient from Woman Creek (DOE, 1987). The Phase I and Phase II RIs indicated that the unconfined ground-water flow system is contaminated. The most pronounced organic contamination appears to be in the eastern portion of the OU as tetrachloroethene, trichloroethene, 1,1-dichloroethene, 1,1-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and carbon tetrachloride reach several thousand micrograms per liter (μg/l) in many samples. Organic contamination in the western portion of the 881 Hillside Area occurs at much lower concentrations. Metal and inorganic concentrations exceeding background concentrations were recorded periodically. Total dissolved solids, nickel, strontium, selenium, zinc, copper, and uranium occurred above background in several ground-water samples from numerous wells (EG&G, 1991b).

Soil sample analyses obtained from the drilling of boreholes during the Phase I and Phase II investigations (Figure 1-3) indicated volatile organic contamination (trichloroethene, tetrachloroethene, and 1,1,1-trichloroethane) in some soil samples (EG&G, 1991b). In addition, toluene was detected in soil samples during the French Drain Geotechnical Investigation. There is some question as to the significance of the presence of methylene chloride, acetone, and phthalates found in soil samples as they may represent laboratory artifact. However, there is insufficient evidence available at this time to verify this hypothesis. Plutonium and americium were detected above background in several samples collected from boreholes. The background tolerance interval upper limits for geologic materials and sediments are provided in Table 1-2 and 1-3, respectively. These samples were generally from the uppermost interval that included the ground surface. Because the samples were composited, the concentrations may not be representative of near surface soil, i.e., there is the possibility that the plutonium and americium

Figure 1-3

Table 1-2

Background Geologic Materials
Tolerance Interval Upper Limits
or Maximum Detected Value

Analyte	Units	Rocky Flats Alluvium (70 Samples)	Colluvium (28 Samples)	Weathered Claystone (17 Samples)	Weathered Sandstone (4 Samples)
Total Metals					
Aluminum	mg/kg	25312	21663	13495	10300*
Antimony	mg/kg	ND	ND	16.2*	ND
Arsenic	mg/kg	15.86	7.7	15.05	3.6*
Barium	mg/kg	155.8	345.8	240.1	165*
Beryllium	mg/kg	11.27	17.75	11.8	2.2*
Cadmium	mg/kg	3.2*	1.8*	ND	ND
Calcium	mg/kg	43079	20811	10183	5940*
Cesium	mg/kg	ND	274*	ND	ND
Chromium	mg/kg	37.9	26.8	16.57	10.7*
Cobalt	mg/kg	18.2*	15.9*	29.7*	20.5*
Copper	mg/kg	20.03	26.7	30.62	19.6*
Iron	mg/kg	22916	29991	41295	12300*
Lead	mg/kg	18.04	26.4	34.5	13.4*
Lithium	mg/kg	44.4	32.1	33.37	7.0*
Magnesium	mg/kg	4425	6151	4896	2520*
Manganese	mg/kg	422.9	545.1	656	305*
Mercury	mg/kg	0.58*	0.44*	0.35*	0.27*
Molybdenum	mg/kg	38.65	32.78	33.68	11.2*
Nickel	mg/kg	43.27	35.4	56.95	14.3*
Potassium	mg/kg	3336	2789	1400*	ND
Selenium	mg/kg	ND	ND	ND	ND
Silver	mg/kg	40.9*	33.5*	18.7*	12.7*
Sodium	mg/kg	ND	3680*	ND	ND
Strontium	mg/kg	226*	111.1	144.42	69.2*
Thallium	mg/kg	ND	ND	ND	ND
Tin	mg/kg	338*	441*	274*	268*
Vanadium	mg/kg	54.67	58.2	47.7	22.2*
Zinc	mg/kg	52.64	98.1	106.7	79.9*

Table 1-2 (Continued)

Background Geologic Materials
Tolerance Interval Upper Limits
or Maximum Detected Value

Analyte	Units	Rocky Flats Alluvium (70 Samples)	Colluvium (28 Samples)	Weathered Claystone (17 Samples)	Weathered Sandstone (4 Samples)
Other					
Sulfide	mg/kg	13*	5*	5*	2*
Nitrate	mg/kg	4.3*	4.274	2.0*	1.9*
pH	----	9.64 (6.06)	9.48 (6.96)	10.14 (7.04)	9.2* (8.0)**
Total Radionuclides					
Gross Alpha	pCi/g	37.108	51.710	52.302	37
Gross Beta	pCi/g	36.886	35.135	35.743	29
Uranium 233, 234	pCi/g	1.491	1.759	1.985	0.8
Uranium 235	pCi/g	0.087	0.169	0.258	0.1
Uranium 238	pCi/g	1.353	1.675	1.643	1.0
Strontium 89, 90	pCi/g	0.768	0.776	0.786	0.4
Plutonium 239, 240	pCi/g	0.017	0.023	0.020	0.01
Americium 241	pCi/g	0.018	NR	NR	NR
Cesium 137	pCi/g	0.082	0.113	ND	0.0
Tritium	pCi/g	0.410	0.299	0.322	0.39

ND - Not Detected
NR - Data Not Received
* - Maximum Detected Value
** - Minimum Detected Value
() - Tolerance Interval Lower Limit for Two-Sided Parameter
mg/kg - milligrams per kilogram
pCi - PicoCuries per gram

Table 1-3

Background Sediment Tolerance Interval Upper Limits or Maximum Detected Value

Analyte	Units	Upper Limit (9 Samples)
Total Metals		
Aluminum	mg/kg	24789
Antimony	mg/kg	ND
Arsenic	mg/kg	13.0*
Barium	mg/kg	182*
Beryllium	mg/kg	ND
Cadmium	mg/kg	ND
Calcium	mg/kg	72551
Cesium	mg/kg	ND
Chromium	mg/kg	43.38
Cobalt	mg/kg	ND
Copper	mg/kg	22.0*
Iron	mg/kg	28308
Lead	mg/kg	39.502
Lithium	mg/kg	ND
Magnesium	mg/kg	4110*
Manganese	mg/kg	372.20
Mercury	mg/kg	ND
Molybdenum	mg/kg	ND
Nickel	mg/kg	29.9*
Potassium	mg/kg	ND
Selenium	mg/kg	ND
Silver	mg/kg	6.8*
Sodium	mg/kg	ND
Strontium	mg/kg	175*
Thallium	mg/kg	ND
Tin	mg/kg	ND
Vanadium	mg/kg	50.2*
Zinc	mg/kg	92.688
Other		
Nitrate	mg/kg	ND
pH	----	9.03 (8.77)
Total Radionuclides		
Gross Alpha	pCi/g	60
Gross Beta	pCi/g	50
Uranium 233, 234	pCi/g	1.669
Uranium 235	pCi/g	0.176
Uranium 238	pCi/g	1.755
Strontium 89, 90	pCi/g	1.390
Plutonium 239, 240	pCi/g	0.096
Americium 241	pCi/g	0.029
Cesium 137	pCi/g	1.578
Tritium	pCi/g	0.408

ND - Not Detected
* - Maximum Detected Value
() - Tolerance Interval Lower Limit for Two-Sided Parameter
mg/kg - milligrams per kilogram
pCi/g - picoCuries per gram

concentrations at the surface were diluted due to the compositing with soils unlikely to be affected by waste disposal activities or affected through contaminant migration processes. The surface is of particular interest because current data suggest plutonium and americium contaminated surface soil was redistributed from the 903 Pad Area by wind.

Subsequent to the Phase II RI soil sampling, surficial soil at nineteen locations was sampled for plutonium, uranium^{238}, and uranium $^{233+234}$ (Lawton, 1989). The data are presented in Table 1-4 and the sample locations are shown in Figure 1-4. The plutonium concentrations are typical of those found in this vicinity and to the east within the Plant boundary (Rockwell International, 1987). It is noted that the highest concentrations are nearest the 903 Pad. High uranium concentrations occurred in samples 881-16 through 881-19. Depleted uranium is used at the Rocky Flats Plant. Unlike natural uranium which has a uranium$^{233 + 234}$ to uranium^{238} activity ratio of approximately one, the depleted uranium isotopic ratio is significantly less than one. The uranium isotope ratios for these surface soils samples indicate the uranium is depleted (low ratio). The contamination presumably resulted from drums that had leaked in the past, or from past spills.

Tetrachloroethene and trichloroethene are the principal volatile organic compounds which may have been detected in surface water samples from a few stations, although the concentrations and frequency of occurrence are low. Semi-volatiles and pesticide/PCBs were detected in some surface water samples collected in 1986. In these instances, pesticides/PCBs were reported at concentrations estimated below the detection limit. Low concentrations of methylene chloride, acetone, and toluene in surface water occur at many sampling stations. Samples from the furthest downgradient surface water station located in the South Interceptor Ditch (SID) did not show organic contamination. Metals and other inorganic compounds occurred intermittently above background, and gross alpha, gross beta, uranium, and plutonium exceeded background in many of the samples collected from surface water stations positioned in the SID and Woman Creek (EG&G, 1991a).

Mercury and molybdenum were occasionally detected above background in sediment stations located on Woman Creek. Several metals however were reported at concentrations exceeding

Table 1-4

881 Hillside 1988 Surficial Soil Radionuclide Concentrations

Sample No.*	Uranium$^{233 + 234}$ (pCi/g)	Uranium^{238} (pCi/g)	Plutonium (pCi/g)
881-1	0.56±0.26	0.6±0.15	4.3±0.5
881-2	0.78±0.26	0.86±0.15	2.4±0.2
881-3	0.82±0.26	0.91±0.15	4.8±0.5
881-4	1.0±0.3	0.97±0.2	0.18±0.006
881-5	0.86±0.26	0.88±0.15	0.59±0.008
881-6	1.5±0.3	5.5±0.5	2.2±0.2
881-7	0.74±0.26	0.75±0.15	0.63±0.09
881-(8)**	0.86±0.26	0.82±0.15	1.8±0.2
881-9	3.1±0.3	1.0±0.2	0.47±0.006
881-(10)**	11.1±0.3	0.98±0.2	3.5±0.4
881-11	1.0±0.3	1.3±0.2	2.6±0.3
881-12	0.93±0.26	1.4±0.	0.4±0.06
881-13	0.94±0.26	1.3±0.2	0.16±0.06
881-14	1.1±0.3	1.0±0.2	3.0±0.4
881-15	2.0±0.3	1.5±0.16	0.01±0.06
881-16	50±190	1300±100	0.3±0.06
881-17	19±74	590±70	0.78±0.19
881-18	60±230	3000±300	0.42±0.08
881-19	10±740	550±602	0.09±0.06
Mean	8.8	287	1.5
Variance	292	542, 875	2.4
Standard Deviation	17	737	1.5
Coefficient of Variation	1.9	2.6	1.0

* See Figure 1-4 for sample locations
**(8),(10) - Sample identification inferred from original data.
pCi/g = picoCuries per gram
Data from: Personal Communication, Richard Lawton, 1989

Figure 1-4

background in several samples collected in the SID drainage. In addition, plutonium was found above background in SID sediments but no radionuclides exceeded background in samples collected from the sediments in Woman Creek. Volatile organic compounds were consistently reported as not detected or reported as below the detection limit in all sediment samples. However, there were detectable concentrations of both classes of these compounds in previously collected sediment samples (EG&G, 1991a).

Data Adequacy

Volatile organic analytical results from the borehole soil sampling activities conducted during the Phase I and Phase II investigations were rejected during data validation primarily due to the use of an insufficient aliquot size for analysis. In addition, there is some question as to the significance of certain solvent contaminant concentrations reported in both soils and ground water as they may represent laboratory contamination. Therefore, the volatile organic soil data previously collected can only serve as a qualitative indication of organic contamination in the soils. With the exception of the volatile organic analyses described above, the majority of the soil and water quality data are either valid or acceptable with qualifications, based on limited data validation conducted in accordance with guidance provided in the Quality Assurance Project Plan (QAPjP) (EG&G, 1990a) and General Radiochemistry and Routine Analytical Services Protocol (GRRASP) (EG&G, 1990b).

With respect to representativeness, the previous results are from boreholes, monitoring wells, surface water, and sediment stations that span the entire OU. However, boreholes did not penetrate all the IHSSs; therefore, previous soil data cannot be considered representative of all buried wastes.

1.2.1.3 Site Conceptual Model

An integral part of the DQO process is the development of a conceptual model to identify contaminant pathways to support data collection needs. Figure 1-5 illustrates the site conceptual model for OU1 portraying the pathways for surficial soil contaminant migration. Surficial soil

contamination at the 881 Hillside potentially has resulted from waste spills and leaks, and surface exposure of shallow buried waste (Table 1-1) as well as from the redistribution of radionuclide contaminated dust via wind from the 903 Pad area.

The principal potential release mechanisms of contaminants from surface soils are volatilization (volatile organics), fugitive dust and wind erosion (non volatile contaminants), leaching into ground water and surface runoff, infiltration/percolation, and biotic uptake (Figure 1-6).

Exposure (human and biota) to contaminants in surface soils can occur through multiple pathways; however, the actual pathways of significance will be determined during the risk assessment. Of primary importance is exposure through direct inhalation of contaminated dust or by ingestion of contaminated soils. An important secondary exposure route is through ingestion of or dermal contact with surface water or sediments contaminated via runoff. The potential receptor populations for each exposure pathway will be determined during the risk assessment.

1.2.1.4 Objectives/Approach

"Near-surface" soil samples will be collected in selected areas to characterize shallow contamination in OU1. The objective of the surface soil characterization program is to provide physical and chemical soil data that is representative of the OU and can be used to:

(1) Develop source terms for exposure pathways evaluated in the risk assessment.

(2) Compare with relevant health-based criteria.

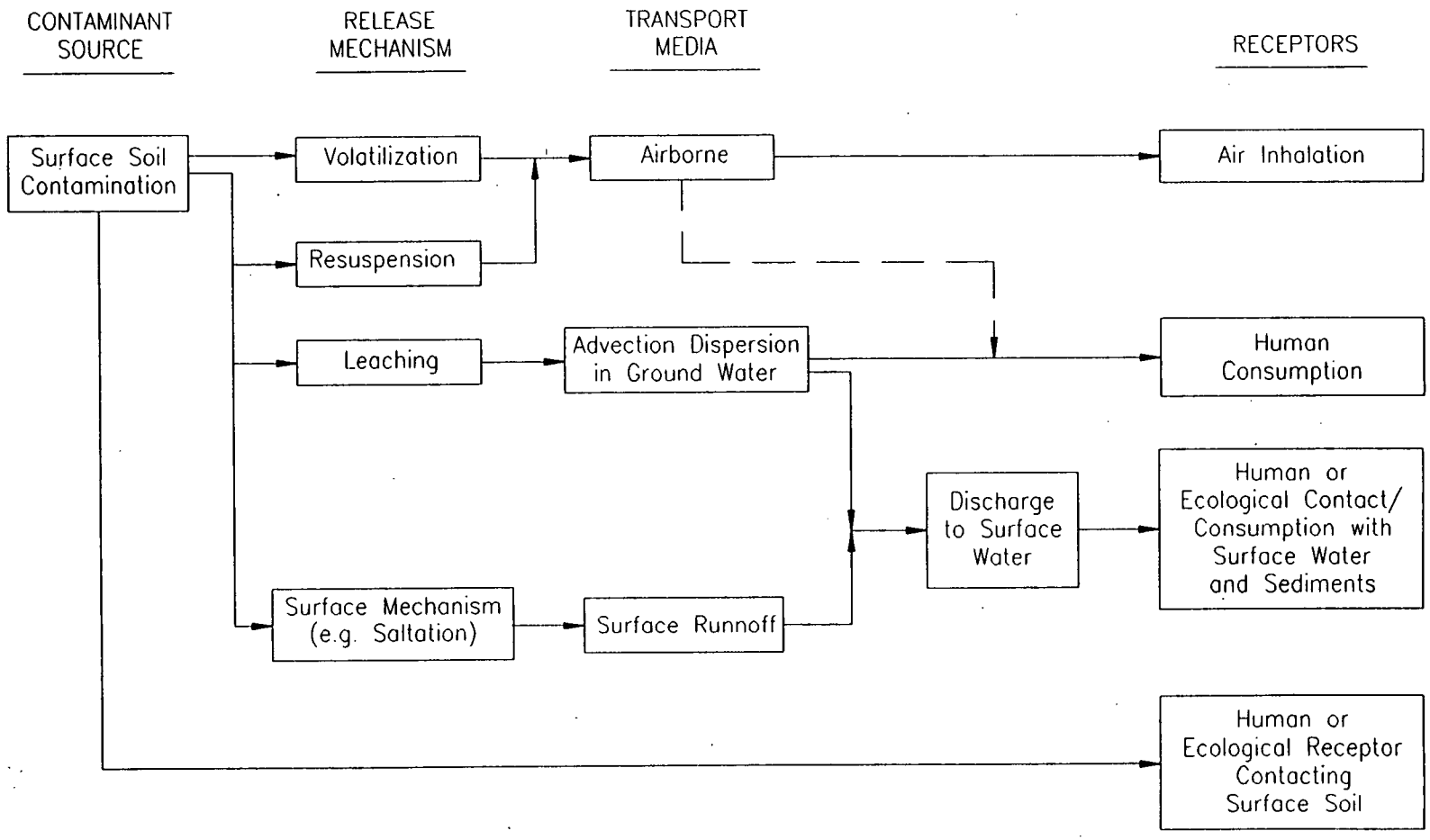
(3) Evaluate potential risks from inhalation of resuspended particulates.

(4) Evaluate potential risks from incidental ingestion of, and dermal contact with contaminated soils.

(5) Evaluate for purposes of the FS, the area and volume of contaminated surface soils that may require containment or treatment and/or disposal. (The sampling program is not comprehensive in attaining this objective but will indicate specific areas requiring remediation and will support extrapolation of additional areas that may require remediation. Sampling and analysis techniques during remediation

Figure 1-5

R33171.PJCW-020692



U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

RISK ASSESSMENT CONCEPTUAL MODEL

FIGURE 1-6

February, 1992

will be used if necessary to better define the areal extent of these soils. It is assumed at this time that surface soils requiring removal will be excavated to a depth of 6 inches (practical depth for earth moving equipment)).

(6) Evaluate the conceptual model.

The sampling program has been designed so that samples are collected in a uniform manner and that the results of the sample analysis are representative of the area selected for characterization. In order to facilitate representative, uniform sampling, random sampling of polygons distributed throughout the area will be conducted using approved Environmental Management Division (EMD) standard operating procedures (SOPs)(EG&G, 1991d) as identified in Section 2. In addition, biased sampling will be conducted at IHSSs to ensure that the surficial soil contamination within each of these IHSSs is adequately characterized. Though a breach of statistical rigor, this bias sampling will tend to result in a more conservative estimate of risks and should not limit the application of statistical data treatment techniques intended for the evaluation. They are the most likely IHSSs to have indigenous surface soil contamination. The SAP is presented in Section 2.

1.2.2 Stage 2 — Data Uses/Needs

Stage 2 of the DQO process involves the identification of data uses and types as well as data quality and quantity needs to meet the objectives specified in Stage 1. It also includes the selection of the sampling approach and the analytical options for the task including the economic and technical feasibility of the technique chosen. Finally, DQOs must address the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters of the planned activities (EPA, 1987).

1.2.2.1 Data Uses

In order to ensure that the sampling effort will address the objectives outlined during Stage 1 of the DQO process, the anticipated uses for the collected data must be specifically stated. The data from the surficial soil sampling activities proposed herein will be used to characterize surficial soil contamination in OU1. The information will be used to evaluate remedial

alternatives, but more importantly, to evaluate the threat posed to public health and environment. Specifically, surface soil contamination shall support development of source-terms for exposure pathways including:

1) Current Use Scenario: Off-site inhalation and ingestion of soil and plants contaminated by deposition of dust.

2) Future Use Scenarios (Technical Memorandum 6 which is currently being prepared will identify exposure scenarios to be used in the Baseline Risk Assessment for OU1):

   a) Off-site as described above in 1.

   b) On-site residential exposure including inhalation of resuspended dust, and incidental ingestion.

   c) On-site ecological researcher exposure including inhalation of resuspended dust, and incidental ingestion. Researcher activities will cover all areas in the OU including Woman Creek and its banks.

3) Environmental Evaluation: Data will support evaluation of potential exposure to ecological receptors and development of food web models.

1.2.2.2 Data Types

Upon identification of the intended users and use of the data to be collected, the specific data types needed can be developed. This is an integral step in the DQO process. Data types include general categories such as background and investigative samples as well as more specific information such as proposed analytical parameters. The analytical requirements are dictated by the intended use of the data (EPA, 1987).

A Site-Specific Chemical Analyte Roster (S-SCAR) has been developed for OU1. A summary of the criteria used to select the analytes is presented in Table 1-5. The criteria include:

- Records of surface releases of analyte classes (i.e., radionuclides, semi-volatiles etc.).
- Previously detected in surface soils.

- Relative mobility (solubility, adsorption). Table 1-6 presents a summary of the inter-media migration characteristics of each of the analyte classes.

- Previously detected in soil boring or sediment samples.

As indicated in Table 1-1, there are several potential site contaminants associated with the IHSSs in OU1 due to the lack of information available on the types and quantity of the stored, buried, and spilled wastes. Section 1.2.1.2 details the nature and extent of contamination at the site based on a review of available data. The previous discussions and data evaluation indicate that, to be conservative, several contaminant classes should be analyzed for during the surface soil sampling program.

Analyte Class I - Radionuclides

Radionuclides are included on the S-SCAR because records indicate historical surface releases and radionuclides were detected in surface, soil boring, and sediment samples. The non-volatile nature of radionuclides coupled with their low to moderate solubility suggests they would persist in the environment near the ground surface. Therefore, surface soil samples collected during this proposed sampling effort will be analyzed for gross alpha; gross beta; $Pu^{239,240}$; $U^{233,234,235,238}$; Am^{241}; and $Ra^{226,228}$. Background samples will also be analyzed for these radionuclides.

Tritium, $Sr^{89,90}$, and Cs^{137} are not on the S-SCAR because they are not expected to be found above background. Tritium exits in the environment as tritiated water, if it were released to surface soils at OU1, it would have been removed by infiltration and runoff since the time of release. $Sr^{89,90}$ and Cs^{137} are products of a nuclear fission. An independent assessment of criticality safety at Rocky Flats Plant conducted by Scientech, Inc., found no evidence of a criticality at Rocky Flats Plant. This study noted that the levels of Cs^{137} activity in the Rocky Flats area are in the range of 0.3 to 0.6 pCi/g averaged over a soil depth of six centimeters based on a July 1989 aerial radiological survey of the Plant. These values are consistent with world-wide fallout levels, and there is no indication of Cs^{137} deposition due to Rocky Flats Plant operations (DOE, 1989).

Table 1-5

Considerations for Identifying the Surface Soil Site-Specific Chemical Analysis Roster (S-SCAR)

ANALYTE CLASS	SURFACE DISPOSAL	FOUND IN SURFACE SOILS	MOBILITY	FOUND IN BORING OR SEDIMENT SAMPLES	INCLUDE IN SURFACE S-SCAR
Radionuclides	Yes	Yes	Low to Moderate	Yes	Yes(1)
Heavy Metals	Unknown	Not Sampled	Low to Moderate	Yes	Yes(2)
Volatile Organics	Unknown	Not Sampled	Would Evaporate from Surface Soils	Yes	No(3)
Semi-Volatiles (Base/Neutrals)	Unknown	Not Sampled	Generally Immobile	Yes	Yes
Semi-Volatile (Acid Extractables)	Unknown	Not Sampled	Generally Mobile	No	No(4)
Pesticides/PCB's	Unknown	Not Sampled	Immobile	Yes	Yes

(1) Surface soil samples will be collected and analyzed for gross alpha; gross beta, $Pu^{239,240}$; $U^{233,234,235,238}$; Am^{241}, $Ra^{226,228}$. Background samples will also be analyzed for these radionuclide parameters.

(2) Priority pollutant metals (As, Sb, Cu, Cd, Cr, Hg, Ni, Pb, Se, Ag, Tl, and Zn, and Fe and Mn).

(3) As previously discussed in the text, volatile organics will not be included in S-SCAR. It is expected that these compound would have volatilized from surface soils and would no longer exist in detectable concentrations.

(4) There are only three detections of chemicals from this analyte class in soil/sediment samples from OU1. As discussed in the chemical analysis plan for OU1 (Technical Memorandum 1), the reported levels were estimated below the method detection and are below health based acceptable concentrations. Also considering the moderate to high soil mobility of this compound class (Technical Memorandum 1), it is unlikely that acid extractable compounds deposited in the surface soils would remain in this disposition. Thus, this class has been excluded from the S-SCAR.

Table 1-6

Summary of Environmental Inter-Media Migration Characteristics

INTER-MEDIA MIGRATION CHARACTERISTIC	ALDEHYDES KETONES	MONOCYCLIC AROMATICS	CHLORINATED ALIPHATICS	ACID EXTRACTABLES	BASE-NEUTRAL EXTRACTABLES	PCB'S	PESTICIDES
Soil to Ground water	Yes	Yes	Yes	Yes	No	No	No
Soil or Soil Water to Air	No	Yes	Yes	No	No	No	No
Migration in Groundwater	Yes	Yes	Yes	Yes	No	No	No

Analyte Class II - Metals

There are no documented surface releases of heavy metals; however, previous surface soil samples were not analyzed for these elements. Heavy metals are included in the S-SCAR because they are generally relatively insoluble and are non-volatile suggesting persistence in the environment near the ground surface. The metals on the S-SCAR are the Priority Pollutant Metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc). These elements are considered to be the most toxic of the heavy metals. In addition, manganese and iron have been added to the S-SCAR at the request of CDH.

The need to analyze the surface soils for hexavalent chromium was evaluated due to its toxicity and potential to affect the environment. Analysis of chromium (VI) in soils requires extraction and analysis techniques which will preserve the valence states of the metals. These techniques are not readily available from commercial laboratories and the effectiveness of the techniques in preserving the state is not documented. In addition, chromium (VI) is highly reactive and will be reduced to chromium (III) when in contract with organic matter, which is likely to be the case for surface soils at the Rocky Flats Plant. Therefore, chromium (VI) has been excluded from the S-SCAR.

Analyte Class III - Volatile Organics

Surface soils need not be analyzed for VOCs due to their high volatilization potential and solubility (mobility in soil, water and runoff, i.e., they are not expected to be present in detectable quantities).

Analyte Class IV - Semi-Volatile Organics

Base/Neutral Extractables

There are no documented releases of semi-volatile compounds and previous surface soil samples were not analyzed for these compounds. However, base/neutral extractable, semi-volatile compounds are included in the S-SCAR because they have been detected in soil boring and sediment samples. In addition, they are relatively insoluble and display low volatility suggesting they would persist in the environment near the ground surface.

Acid Extractables

There were only three detections of these chemicals in the soils/sediments at OU1 (EG&G, 1991c). The reported concentrations were estimated levels below detection limits. These findings, coupled with the high mobility of this class of compounds in the environment (i.e., from soil to ground water) (Table 1-6) suggest the occurrence of those compounds in the surface soils is improbable. Furthermore, as a class, acid extractables are generally not toxic. This analyte class has been deleted from the analytical suites for future samples collected in OU1 [see Technical Memorandum 1 Chemical Analysis Plan for OU1 (EG&G, 1991c)]. They are accordingly not included in the surface soil sampling S-SCAR.

Analyte Class V - Pesticides/PCBs

There are no documented surface releases of organochlorine pesticides or PCBs; however, previous surface soil samples were not analyzed for these compounds. Organochlorine pesticides and PCB's are included in the S-SCAR because they have been detected in borehole and sediment samples. In addition, they are relatively insoluble and non-volatile suggesting persistence in the environment near the ground surface.

The S-SCAR and associated analytical methods and detection limits are presented in Table 1-7.

Table 1-7

Site-Specific Chemical Analysis Roster (S-SCAR)

SUBSTANCE (Radionuclides)	ANALYTICAL METHOD	METHOD DETECTION LIMIT (pCi/g)
Gross Alpha	a,b,c,d,e,f,g,h	4
Gross Beta	a,b,c,d,e,f,g,h	10
$Pu^{239,240}$	i,j	0.03
$U^{233,234}$	a,c,d,g,h	0.3
U^{235}	a,c,d,g,h	0.3
U^{238}	a,c,d,g,h	0.3
$Americium^{241}$	j,k	0.02
$Radium^{226}$	a,b,c,g	0.5
$Radium^{228}$	a,b,c,g	0.5
SUBSTANCE (Metals)	**ANALYTICAL METHOD[1]**	**METHOD DETECTION LIMIT (mg/kg)**
Antimony	200.7	12
Arsenic	200.7	1.0
Beryllium	200.7	1.0
Cadmium	200.7	1.0
Chromium	200.7	2.0
Copper	200.7	5.0
Iron	200.7	5.0
Lead	239.2	1.0
Manganese	200.7	3.0
Mercury	245.5	0.2
Nickel	200.7	8.0
Selenium	270.2	1.0
Silver	200.7	2.0
Thallium	270.2	2.0
Zinc	200.7	4.0
SUBSTANCE (Semi-Volatiles)	**ANALYTICAL METHOD[1]**	**METHOD DETECTION LIMIT (µg/kg)**
Dibenzofuran	625	330
2,4-Dinitrotoluene	625	330
Diethylphthalate	625	330
4-Chlorophenyl-phenylether	625	330
Fluorene	625	330
4-Nitroaniline	625	1600
N-nitrosodiphenylamine	625	330
4-Bromophenyl-phenylether	625	330
Hexachlorobenzene	625	330
Phenanthrene	625	330
Anthracene	625	330
Di-n-butylphthalate	625	330
Fluoranthene	625	330
Pyrene	625	330
Butylbenzylphthalate	625	330
3,3'-Dichlorobenzidine	625	660
Benzo(a)anthracene	625	330
Chrysene	625	330
bis(2-Ethylhexyl)phthalate	625	330
Di-n-octylphthalate	625	330
Benzo(b)fluorathene	625	330
Benzo(k)fluoranthene	625	330
Benzo(a)pyrene	625	330
Indeo(1,2,3-cd)pyrene	625	330
Dibenz(a,h)anthracene	625	330
Benzo(g,h,i)perylene	625	330
bis(2-Chloroethyl)ether	625	330
1,3-Dichlorobenzene	625	330
1,4,-Dichlorobenzene	625	330
1,2-Dichlorobenzene	625	330
bis(2-Chloroisopropyl)ether	625	330

Table 1-7

Site-Specific Chemical Analysis Roster (S-SCAR) (Continued)

SUBSTANCE (continued) (Semi-Volatiles)	ANALYTICAL METHOD[1]	METHOD DETECTION LIMIT (µg/kg)
N-Nitroso-di-n-dipropylamine	625	330
Hexachloroethane	625	330
Nitrobenzene	625	330
Isophorone	625	330
bis(2-chloroethoxy)methane	625	330
1,2,4-Trichlorobenzene	625	330
Naphthalene	625	330
4-Chloroaniline	625	330
Hexachlorobutadiene	625	330
2-Methylnaphthalene	625	330
Hexachlorocyclopentadiene	625	330
2-Chloronaphthanlene	625	330
2-Nitroaniline	625	1600
Dimethylphthalate	625	330
Acenaphthylene	625	330
2,6-Dinitrotoluene	625	330
3-Nitroaniline	625	1600
Acenaphthene	625	330
SUBSTANCE (Pesticides/PCBs)	**ANALYTICAL METHOD[1]**	**METHOD DETECTION LIMIT (µg/kg)**
alpha-BHC	608	8.0
beta-BHC	608	8.0
delta-BHC	608	8.0
gamma-BHC(Lindane)	608	8.0
Heptachlor	608	8.0
Aldrin	608	8.0
Heptachlor epoxide	608	8.0
Endosulfan I	608	8.0
Dieldrin	608	16.0
4,4'-DDE	608	16.0
Endrin	608	16.0
Endosulfan II	608	16.0
4,4'-DDD	608	16.0
Endosulfan Sulfate	608	16.0
4,4'-DDT	608	16.0
Methoxychlor	608	80.0
Endrin ketone	608	16.0
alpha-Chlordane	608	80.0
gamma-Chlordane	608	80.0
Toxaphene	608	160.0
Aroclor-1016	608	80.0
Aroclor-1221	608	80.0
Aroclor-1232	608	80.0
Aroclor-1242	608	80.0
Aroclor-1248	608	80.0
Aroclor-1254	608	160.0
Aroclor-1260	608	160.0

Table 1-7

Site-Specific Chemical Analysis Roster (S-SCAR) (Continued)

SUBSTANCE	ANALYTICAL METHOD[1]	METHOD DETECTION LIMIT (µg/kg)
pH	9040	0.1 pH unit
Specific Conductance	9050	1
Carbonate	310.1	50 mg/kg
Oil and Grease	413.1	100 mg/kg
Total Suspended Particulate	NIOSH 0500[m]	0.2 mg/m^3
Respirable Particulate Matter	NIOSH 0600[n]	0.2 mg/m^3
Ammonia	350.2	50 mg/kg
Nitrate-Nitrite	353.2	50 mg/kg

a. U.S. Environmental Protection Agency, 1979, Radiochemical Analytical Procedures for Analysis of Environmental Samples, Report No. EMSL-LY-0539-1, Las Vegas, NV, U.S. Environmental Protection Agency.

b. American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1985. Standard methods for the Examination of Water and Wastewater, 16th ed., Washington, D.C., Am. Public Health Association.

c. U.S. Environmental Protection Agency, 1976. Interim Radiochemical Methodology for Drinking Water, Report No. EPA-600/4-75-008. Cincinnati U.S. Environmental Protection Agency.

d. Harley, H.H., ed., 1975, HASL Procedures Manual, HASL-300; Washington, D.C., U.S. Energy Research and Development Administration.

e. "Handbook of Analytical Procedures," USAEC, Grand Junction Lab. 1970, page 196.

f. "Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA-600/-80-032, August 1980 Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.

g. "Methods for Determination of Radioactive Substance in Water and Fluvial Sediment," U.S.G.S. Book 5, Chapter A5, 1977.

h. "Acid Dissolution Method for the Analysis of Plutonium in Soil," EPA-600/7-79-081, March 1979, U.S. EPA Environmental Monitoring and Support Laboratory, las Vegas, Nevada, 1979.

i. "Procedures for the isolation of Alpha Spectrometrically Pure Plutonium, Uranium, and Americium," by E.H. Essington and B.J. Drennon, Los Alamos National Laboratory, a private communication.

j. "Isolation of Americium from Urine Samples," Rocky Flats Plant, Health, Safety, and Environmental Laboratories.

k. "Radioactivity in Drinking Water," EPA 570/9-81-002.

l. USEPA Methods for Chemical Analysis of Water and Wastes.

m. Nuisance Dust, Total, NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health (NIOSH) Method No. 0500, Cincinnati, Ohio.

n. Nuisance Dust, Respirable, NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health (NIOSH) Method No. 0600, Cincinnati, Ohio.

mg/kg milligrams per kilogram

mg/m^3 milligrams per cubic meter

pCi/g picoCuries per gram

µg/kg micrograms per kilogram

1.2.2.3 Data Quality

Analytical Level

Analytical methods and support levels must be evaluated during the development of site specific DQOs. The parameters for which the analytical method is valid, its limitations, and any special considerations which will affect data quality must be understood in order to select appropriate analytical methods for specific uses.

The analytical options available to support data collection activities are presented in five general levels (EPA, 1987). These levels are distinguished by the types of technology and documentation used, and their degree of sophistication.

- LEVEL V - Non-standard methods. Analyses which may require method modification and/or development. These data can be used for toxicology applications.
- LEVEL IV - Contract Laboratory Program (CLP) Routine Analytical Services (RAS). This level is characterized by rigorous QA/QC protocol and documentation and provides qualitative and quantitative analytical data. These data can be used for toxicology applications.
- LEVEL III - Laboratory analysis using methods other than CLP RAS. This level is used primarily to support engineering studies and risk assessments using standard EPA approved procedures. Some procedures may be equivalent to CLP RAS without the CLP requirements for documentation.
- LEVEL II - This level is characterized by the use of portable analytical instruments which can be used on-site, or in mobile laboratories stationed near a site. This level is appropriate for determining presence or absence of contaminants, relative concentrations and screening of samples.
- LEVEL I - This level is characterized by the use of portable instruments which can provide real-time data to assist in the optimization of sampling point locations.

Soil chemistry data derived from the proposed surface soil sampling and analysis program at OU1 will be used, in part, to evaluate human health and ecological risks posed by contamination, if any. Toxicological interpretation of soil chemistry requires validation of analytical data. Only LEVEL V and LEVEL IV analytical reports provide sufficient documentation to allow for data validation. Although LEVEL III analytical procedures are

similar to LEVEL IV, the documentation provided is not sufficient for data validation. Therefore, soil samples collected as part of this plan will be subjected to LEVEL IV analytical procedures and reporting requirements; however, LEVEL III may be adequate but is not feasible at this time due to administrative constraints (i.e., laboratory contracts, costs, procurement). Therefore, LEVEL III analyses may be proposed for subsequent sampling programs if appropriate.

Detection Limits

In this section, a comparison is made between analytical detection limits for the S-SCAR and the concentration of each analyte which will pose a marginally acceptable health risk. This concentration is referred to as an acceptable exposure limit (EL) and is given in mg/kg. EL's have been calculated for those analytes detected in OU1 soils and sediments, and that are recognized as having chronic or carcinogenic health effects in humans (i.e., Oral Reference Dose (RfD) or Carcinogenic Slope Factor exists for the substance). Reference Dose (RfD) and Carcinogenic Slope Factors were taken from the Integrated Risk Information System (IRIS) and/or Health Effects Assessment Summary Tables (HEAST) (EPA, 1991). EL's have been calculated using exposure scenarios for both a resident and ecological researcher. As discussed previously, exposure scenarios employed in the baseline risk assessment for OU1 will be identified in Technical Memorandum 6. Exposure limits for a residential and ecological researcher have been developed in this document to evaluate a range of potential applications. Detection limits for analytes are specified in the GRRASP (EG&G, 1990a). The purpose of this exercise is to identify those analytes which may require special analytical procedures to achieve detection limits equal to or less than a calculated EL.

ELs have been compiled based on non-carcinogenic (systemic) and/or carcinogenic properties of the contaminants. The basic difference in methodology for assessing non-carcinogenic and carcinogenic risk is the assumption that non-carcinogenic health effects are threshold events, whereas carcinogenic risk is a cumulative effect. For non-carcinogens, threshold level intake must be exceeded before potential adverse health effects are expected.

The potential for non-carcinogenic health effects are quantified by comparing the daily intake (DI) to a RfD as shown below.

Non-cancer Hazard Quotient (HQ)		=	DI/RfD	(1)
Where:	DI	=	daily intake (mg/kg-day)	
	RfD	=	reference dose (mg/kg-day)	

Non-carcinogenic risks from multiple contaminants are conservatively assumed to be additive. A noncancer hazard index (HI) is computed by summing HQs for each contaminant.

$$HI = DI_1/RfD_1 + DI_2/RfD_2 + \cdots DI,RfD \qquad (2)$$

A HI less than 1 implies there will not be systemic health effects from exposure to the contaminants. Therefore, for each contaminant, the HQ has been set at 0.1 in computation of the EL to allow for the additive effects of other contaminants.

Calculated carcinogenic risks estimate the increased likelihood of an individual contracting cancer during his/her lifetime due to contaminant exposure. Carcinogenic risks from multiple contaminants are also assumed to be additive.

	Risk	=	CDI x CSF	(3)
Where:				
	CDI	=	Chronic Daily Intake (mg/kg-day) or (pCi)	
	CSF	=	Carcinogenic Slope Factor $(mg/kg\text{-}day)^{-1}$ or $(pCi)^{-1}$	

For each contaminant, the risk has been set at 10^{-6} in computation of the EL to allow for the additive effects of the other contaminants. This would result in the cumulative risk from all site carcinogens in the range of 10^{-4} to 10^{-6}, which is the target risk range for remediation of the site.

The following equation is used to estimate the intake (CDI or DI) resulting from non-radioactive contaminant ingestion.

$$\text{Intake (mass contaminant/body mass/time)} = \frac{EL \times IR \times ED \times EF}{BW \times AT} \quad (4)$$

Where:

EL	=	Concentration in soil, at the point of exposure (EL) (mass contaminant/mass soil)
IR	=	Ingestion Rate (mass soil/time)
BW	=	Body Weight (mass)
ED	=	Exposure Duration (time)
AT	=	Averaging Time (time)
EF	=	Exposure frequency (unitless)

The following equation is used to estimate the intake (CDI or DI) resulting from radionuclide contaminant ingestion.

$$\text{Intake (Activity)} = EL \times IR \times ED \times EF \quad (5)$$

Where: EL = Concentration in soil at the point of exposure (activity/mass soil)

From these equations, (1) and (4), (3) and (4), or (3) and (5) the EL is calculated using the pre-selected values for HQ and Risk. These resulting equations and the parameters used for calculating the ELs for soil, are presented in Tables 1-8 through 1-10.

The combined soil and dust ingestion rates used in Table 1-8 through 1-10 are presented in OSWER Directive 9850.4 (EPA, 1989), which specifies 200 mg per day for children ages 1 through 6 (6 years of exposure) and 100 mg per day for others. These factors account for ingestion of both outdoor soil and indoor dust and are believed to represent upper-bound values

Table 1-8

Exposure Limit Calculations
For Noncarcinogenic Chemicals In Soil

$$EL = \frac{RfD \times HQ \times BW \times AT}{IR \times CF \times ED \times EF}$$

EL = exposure limit for soil (mg/kg)

RfD = oral reference dose (mg/kg-day)

HQ = hazard quotient (unitless)
= 0.1

BW = body weight (kg)
= worker - 70 kg
= resident[a] - 70 kg adult and 15 kg child

AT = averaging time (period over which exposure is averaged)
= ED × 365 days/year

IR = ingestion rate (mg/day)
= worker - 61 mg/day
= resident[a] - 100 mg/kg adult and 200 mg/day child

CF = conversion factor (1E-6 kg/mg)

ED = exposure duration (years)
= worker - 20 years
= resident[a] - 24 years adult and 6 years child

EF = exposure frequency (days/year)
= worker - 100 days/year
= residential - 350 days/year

[a] Residential exposure has been time-weighted averaged to consider both child and adult exposure during the 30-year exposure duration per OSWER Directive 9850.4 (EPA, 1989).

Table 1-9

Exposure Limit Calculations For Carcinogenic Chemicals In Soil

$$EL = \frac{RISK \times BW \times AT}{IR \times CF \times ED \times EF \times CSF \times RP}$$

EL = exposure limit for soil (mg/kg)

RISK = 1E-6

BW = body weight (kg)
= resident[a] - 70 kg adult and 15 kg child

AT = averaging time (period over which exposure is averaged)
= 70 years × 365 days/year

IR = ingestion rate (mg/day)
= worker - 61 mg/day
= resident[a] - 100 mg/day adult and 200 mg/day child

CF = conversion factor (1E-6 kg/mg)

ED = exposure duration (years)
= worker - 20 years
= resident[a] - 24 years adult and 6 years child

EF = exposure frequency (days/year)
= worker - 100 days/year
= residential[a] - 350 days/year

CSF = carcinogenic slope factor (kg-day/mg)

RP = relative potency (factor considered only for PAHs)[b]

[a] Residential exposure has been time-weighted averaged to consider both child and adult exposure during the 30-year exposure duration per OSWER Directive 9850.4 (EPA, 1989).

[b] OSWER Directive: Risk Assessment Guidance on Polycyclic Aromatic Hydrocarbons

Table 1-10

Exposure Limit Calculations For Radionuclides In Soil

$$EL = \frac{RISK}{CSF \times IR \times ED \times EF \times CF}$$

EL = exposure limit for soil (pCi/g)

Risk = 1E-6

CSF = carcinogenic slope factor $(pCi)^{-1}$

IR = ingestion rate (g/day)
= worker - 61 mg/day
= residential - 100 mg/day adult and 200 mg/day child

ED = exposure duration (years)
worker - 20 years
resident - 24 years adult and 6 years child

EF = exposure frequency (day/year)
worker - 100 days/year
resident - 350 days/year

CF = conversion factor (10^{-3} g/mg)

for soil and dust ingestion (Calabrese, et al., 1989; Calabrese, et al., 1990a,b; Davis, et al., 1990; Van Wijnen, et al., 1990). Presently there is no widely accepted method for determining the relative contribution of each medium (i.e., soil vs. dust) to these daily totals, and the effect of climatic variations (e.g., snow cover) on these values has yet to be determined. Thus, a constant, year round exposure is assumed (i.e., 350 days/year).

The equation for calculating a 30-year residential exposure to soil/dust is divided into two parts. First, a 6-year exposure duration is evaluated for young children which accounts for the period of highest soil ingestion (200 mg/day) and lowest body weight (15 kg). Second, a 24-year exposure duration is assessed for older children and adults by using a lower soil ingestion rate (100 mg/day) and an adult body weight (70 kg).

Reference doses, carcinogenic slope factors, and relative potency factors used in the calculations are provided in Table 1-11. Relative potency factors represent the relative carcinogenicity of the polycyclic aromatic hydrocarbons (PAHs) to Benzo(a)pyrene. These relative potency factors are proposed (OSWER Directive: Risk Assessment Guidance on Polycyclic Aromatic Hydrocarbons). Table 1-12 compares ELs calculated for an ecological researcher with analytical detection limits as specified by GRRASP. A review of this table reveals that GRRASP specified detection limits are lower than calculated ELs, therefore no special analytical procedures will be required.

Table 1-13 compares detection limits with ELs calculated for a resident. With the exception of antimony, beryllium, thallium, benzo(a)pyrene (BaP) and benzo(b)flouranthene (BbF), GRRASP specified detection limits are lower than calculated ELs. For antimony and thallium, the detection limit allows quantification of a HQ of 0.4. In the case of beryllium, the detection limit allows quantification of a 6E-6 cancer risk. For both BaP and BbF, the detection limit will allow quantification of a 5E-6 risk. Although the above noted detection limits somewhat compromise the risk assessment objectives, non-carcinogenic an carcinogenic health effects for these compounds can still be quantitated in an acceptable range, i.e., a HQ < 1 and a cancer risk less that 10^{-4}.

Table 1-11

Toxicity Values Used to Compute Exposure Limits

SUBSTANCE	CHRONIC ORAL RFD mg/kg-day	ORAL CARCINOGENIC SLOPE FACTOR mg/kg-day^{-1}	RELATIVE POTENCY
Radionuclides			
U^{233}	NA	1.4E-10	NA
U^{234}	NA	1.4E-10	NA
U^{235}	NA	1.3E-10	NA
U^{238}	NA	1.3E-10	NA
Sr^{89}	NA	3.0E-12	NA
Sr^{90}	NA	3.3E-11	NA
Pu^{239}	NA	3.1E-10	NA
Pu^{240}	NA	3.1E-10	NA
Am^{241}	NA	3.1E-10	NA
Cs^{137}	NA	2.8E-11	NA
H^{3}	NA	5.5E-14	NA
Ra^{226}	NA	1.2E-10	NA
Ra^{228}	NA	1.0E-10	NA
Metals	mg/kg-day	mg/kg-day^{-1}	
Antimony	4E-4	NA	NA
Arsenic	1E-3	NA	NA
Beryllium	5E-3	4.3	NA
Cadmium	1E-3	NA	NA
Chromium	5E-3	NA	NA
Copper	NA	NA	NA
Iron	NA	NA	NA
Lead	NA	NA	NA
Manganese	1E-1	NA	NA
Metals, continued			
Mercury	3E-4	NA	NA
Nickel	2E-2	NA	NA
Selenium	5E-3	NA	NA
Silver	3E-3	NA	NA

TABLE 1-11

Toxicity Values Used to Compute Exposure Limits (Continued)

SUBSTANCE	CHRONIC ORAL RFD mg/kg-day	ORAL CARCINOGENIC SLOPE FACTOR mg/kg-day^{-1}	RELATIVE POTENCY
Thallium	7E-5	NA	NA
Zinc	2E-1	NA	NA
Semi-volatiles Diethylphthalate	8E-1	NA	NA
Acenaphthene	6E-2	NA	NA
Fluorene	4E-2	NA	NA
N-Nitrosodiphenylamine	NA	1.4E-3	NA
Anthracene	3E-1	11.5[a]	0.01
Pyrene	3E-2	NA	NA
Benzo(a)Anthracene	NA	11.5[a]	0.01
Bis(2-Ethylhexyl)Phthalate	2E-2	1.4E-2	NA
Chrysene	NA	11.5[a]	0.01
Benzo(b)Fluoranthene	NA	11.5[a]	1.0
Benzo(k)Fluoranthene	NA	11.5[a]	0.01
Benzo(a)Pyrene	NA	11.5	1.0
Indeno(1,2,3-cd)Pyrene	NA	11.5[a]	0.01
Benzo(g,h,i)Perylene	NA	11.5[a]	0.01
Arochlor	NA	7.7	NA
Beta-BHC	NA	1.8	NA

NA Not available

a The carcinogenic slope factor value for Benzo(a)pyrene has been used for all B2 polycyclic aromatic hydrocarbons (PAHs).

Detection limits were also compared to many world-wide regulatory criteria and guidance for soil cleanup (Fish and Wildlife Service, 1990a). Detection limits are lower than most of the cited criteria and guidance. In addition, several references were reviewed in an attempt to document concentrations of contaminants that are marginally acceptable for protection of ecological receptors (U.S. Fish and Wildlife, 1986a, 1986b, 1987a, 1987b, 1990b, 1990c). These "acceptable concentrations" were not identified for soil. However, considering the zfavorable comparison to the ELs and above noted regulatory criteria, and that CLP-RAS detection limits have been successfully used in environmental evaluations at Superfund sites, it is likely the detection units established for this surface soil sampling program are adequate for this purpose.

Background Samples

Representative background analytical data are necessary for meaningful interpretations of surface soil data at OU1. Background data will determine naturally-occurring spatial variability and concentration levels of a constituent. Background surface soil data can then be compared withdata from OU1 to determine the likelihood that concentrations of chemicals or elements, particularly those that are naturally occurring, represent waste activities at the OU. Background sampling is discussed in Section 2.

1.2.2.4 Data Quantity

The number of samples which should be collected can be determined using a variety of approaches. In situations where data are available, statistical techniques may be utilized to determine the required number of samples to meet the program objectives (EPA, 1987). The SAP described in Section 2 provides a statistical approach for determining the sample numbers and locations. Evaluation of the data upon completion of the data collection activity is necessary to determine the adequacy of the data collected.

Table 1-12

Exposure Limits
Ecological Researcher

SUBSTANCE	EL NONCARCINOGENIC (pCi/g)	EL CARCINOGENIC (pCi/g)	DETECTION LIMIT (pCi/g)
Radionuclides			
U^{233}	NA	58	0.3
U^{234}	NA	58	0.3
U^{235}	NA	63	0.3
U^{238}	NA	63	0.3
Sr^{89}	NA	2,732	1.0
Sr^{90}	NA	248	1.0
Pu^{239}	NA	26	0.3
Pu^{240}	NA	26	0.03
Am^{141}	NA	26	0.02
Cs^{137}	NA	292	0.1
H^{3}	NA	149,030	400
Ra^{226}	NA	68	0.5
Ra^{228}	NA	82	0.5
Metals	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	167	NA	12
Arsenic	418	NA	1
Beryllium	2,094	3.4	1
Cadmium	418	NA	1
Chromium	2,094	NA	2
Copper	NA	NA	5
Iron	NA	NA	5
Lead	NA	NA	1.0
Manganese	41,885	NA	3
Mercury	125	NA	0.2
Nickel	8,377	NA	8
Selenium	2,094	NA	1

TABLE 1-12

EXPOSURE LIMITS
ECOLOGICAL RESEARCHER (Continued)

SUBSTANCE	EL NONCARCINOGENIC (pCi/g)	EL CARCINOGENIC (pCi/g)	DETECTION LIMIT (pCi/g)
Silver	1,256	NA	2
Metals, continued Thallium	29.3	NA	2
Zinc	83,770	NA	4
Semi-Volatiles Diethylphthalate	335,080	NA	0.33
Acenaphthene	25,131	NA	0.33
Fluorene	167,540	NA	0.33
N-Nitrosodiphenylamine	NA	10,471	0.33
Anthracene	125,655	127	0.33
Pyrene	12,566	NA	0.33
Benzo(a)Anthracene	NA	127	0.33
Bis(2-Ethylhexyl)Phthalate	8,377	1,047	0.33
Chrysene	NA	127	0.33
Benzo(b)Fluoranthene	NA	1.27	0.33
Benzo(k)Fluoranthene	NA	127	0.33
Benzo(a)Pyrene	NA	1.27	0.33
Indeno(1,2,3-cd)Pyrene	NA	127	0.33
Benzo(g,h,i)Perylene	NA	127	0.33
Pesticide/PCB Arochlor 1254	NA	1.9	0.160
Beta-BHC	NA	8.14	0.008

NA Not Available

Table 1-13

Exposure Limits
Resident

Substance	EL Noncarcinogenic (pCi/g)	EL Carcinogenic (pCi/g)	Detection Limit (pCi/g)
Radionuclides			
U^{233}	NA	5.7	0.3
U^{234}	NA	5.7	0.3
U^{235}	NA	6.1	0.3
U^{238}	NA	6.1	0.3
Sr^{89}	NA	264	1.0
Sr^{90}	NA	24.1	1.0
Pu^{239}	NA	2.6	0.3
Pu^{240}	NA	2.6	0.03
Am^{241}	NA	2.5	0.3
Cs^{137}	NA	28	0.1
H^{3}	NA	14,430	400
Ra^{226}	NA	6.6	0.5
Ra^{228}	NA	7.9	0.5
Metals	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	2.8	NA	**12***
Arsenic	7.1	NA	1
Beryllium	35.4	0.17	**1.0***
Cadmium	7.1	NA	1
Chromium	35.4	NA	2
Copper	NA	NA	5
Iron	NA	NA	5
Lead	NA	NA	1
Manganese	708	NA	3
Mercury	2.1	NA	0.2
Nickel	142	NA	8
Selenium	35.4	NA	1
Silver	21.2	NA	2

Table 1-13 (Continued)

Exposure Limits
Resident

Substance	EL Noncarcinogenic (mg/kg)	EL Carcinogenic (mg/kg)	Detection Limit (mg/kg)
Thallium	0.50	NA	2*
Zinc	1,416	NA	4
Semivolitiles			
Diethylphthalate	5,664	NA	0.33
Acenaphthene	425	NA	0.33
Fluorene	2,832	NA	0.33
N-Nitrosodiphenylamine	NA	536	0.33
Anthracene	2,124	6.5	0.33
Pyrene	212	NA	0.33
Benzo(a)Anthracene	NA	6.5	0.33
Bis(2-Ethylhexyl)Phthalate	142	53.6	0.33
Chrysene	NA	6.5	0.33
Benzo(b)Fluoranthene	NA	0.07	0.33*
Benzo(k)Fluoranthene	NA	6.5	0.33
Benzo(a)Pyrene	NA	0.07	0.33*
Indeno(1,2,3-cd)Pyrene	NA	6.5	0.33
Benzo(g,h,i)Perylene	NA	6.5	0.33
Pesticide/PCBs			
Aroclor-1254	NA	0.10	0.160
Beta - BHC	NA	0.42	0.008

* Detection limits for antimony, beryllium, thallium, benzo(b)fluoranthene, and benzo(a)pyrene as specified in General Radiochemistry and Routine Analytical Services Protocol (GRRASP) will not achieve Residential Exposure Limit.

NA - Not available
mg/kg = milligram/kilogram
pCi/g = picoCurie/gram

1.2.2.5 PARCC Parameters

The PARCC parameters are indicators of data quality. Precision is a quantitative measurement of the reproducibility of the data under a given set of conditions and may be determined by collecting field duplicate (replicate) samples. Accuracy measures the bias in a sampling program. Sampling accuracy can be assessed through the collection and analysis of field and trip blanks. Analytical accuracy is evaluated through the analysis of laboratory quality control (QC) samples and matrix spikes. The degree to which a data set is representative of the study area is known as representativeness. This criterion is best addressed by ensuring that the SAP justifies sampling locations and that a sufficient number of samples are collected. Completeness is defined as the percentage of valid measurements and comparability is a qualitative indicator of how well newly collected data will be comparable with previously collected data. PARCC parameters for the surface soil sampling program are discussed in Section 3.

1.2.3 Stage 3 — Documentation

Stage 3 results in the description of the procedures that will be implemented to obtain data of acceptable quality and quantity to make the required decisions. Through the implementation of the DQO process, components required for completion of Stage 3 should be available.

The SAP presented in Section 2 describes the data collection program for the surface soil sampling task. The plan discusses the protocols for sample collection including the types, locations, and frequency of samples to be collected. Section 3 presents QA/QC considerations.

SECTION 2
SAMPLING AND ANALYSIS PLAN

2.1 SAMPLING PLAN

2.1.1 Surficial Soil Sampling for Radionuclides

Plutonium is elevated above background levels in Phase II RI borehole samples from several sites in the 881 Hillside Area. Plutonium contamination may be limited to the uppermost soil, for its suspected origin is windblown particulates from the 903 Pad Area. In order to characterize the vertical and horizontal extent of surficial soil actinide contamination, surficial soil scrapes and vertical soil profiles have been collected in remedial investigation areas, and in the Plant buffer zone south and east of these areas to Indiana Street as part of the 903 Pad, Mound, and East Trenches Areas (OU2) Phase II RI. This surficial soil sampling also includes the 881 Hillside Area and is summarized below. The surficial soil field sampling plan is presented in Attachment 1.0 of the Phase II RFI/RI Work Plan (Alluvial) OU2 (EG&G, 1991b). Soil samples were analyzed for plutonium and americium. Uranium analyses (233, 234, 235, and 238) were also performed, although not specified in the plan.

In order to assess the spatial distribution of plutonium, uranium, and americium in surficial soils within the Plant boundaries, pedologic soil samples were collected across the 800 acre area which includes OU1 as shown in Figure 2-1. Figure 2-1 was constructed based on review of previous investigation results, data analysis of unpublished material, and radiological surveys. The geostatistical analysis of previous investigation results are presented in the surficial soil sampling plan (Attachment 1.0; OU2 Final Phase II RFI/RI Work Plan [Alluvial] [EG&G, 1991b]). The State of Colorado requires special techniques of construction on lands with plutonium concentrations greater than 2.0 disintegrations per minute per gram (dpm/g) (0.9 pCi/g) of dry soil. To evaluate the soil-plutonium values relative to this standard, the CDH soil sampling protocol for evaluating large tracts of land remote from the source of contamination was used.

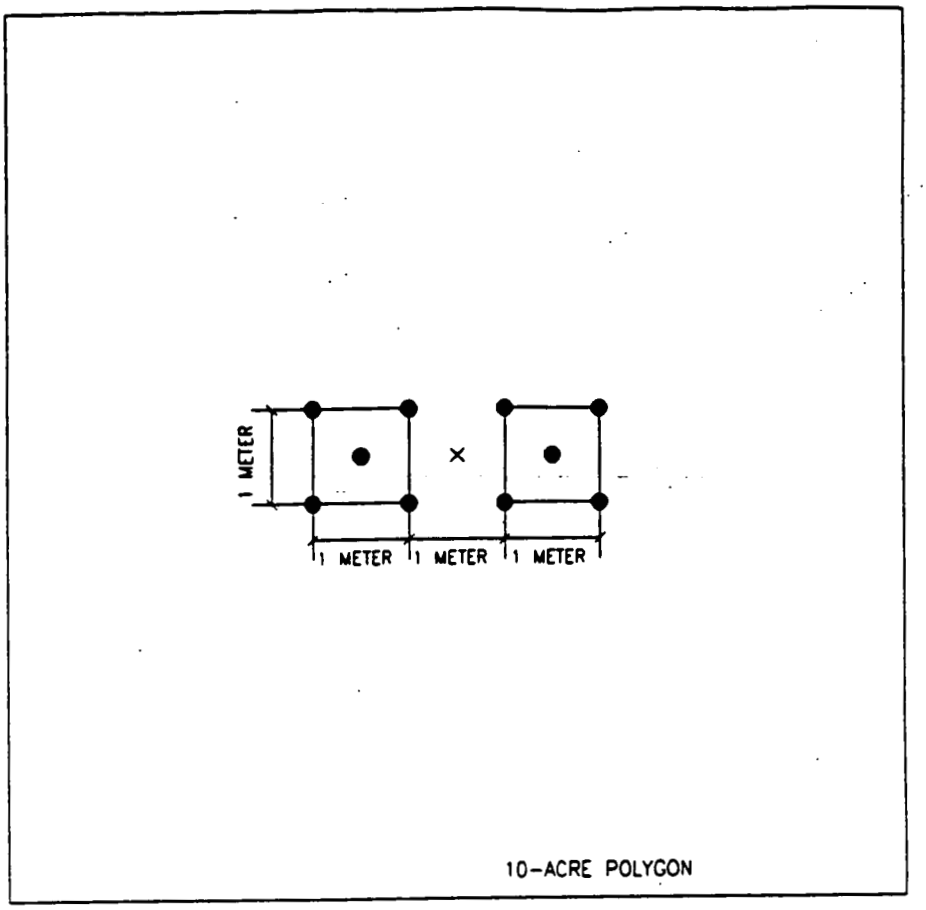
Figure 2-1 Surface Soil Sampling Plot ID #S

The CDH protocol involves sampling the upper 1/4 inch of the soil using a template which results in a sample size of 1/4 inch deep by 2 inches wide and 2-3/8 inch long. According to the protocol, 25 subsamples are collected within a 10-acre area and composited for radionuclide analysis. The method is described in detail in the EG&G Environmental Management Division (EMD) SOPs (EG&G, 1991d), Procedure GT.8.

The northwest corner of each grid was surveyed and marked with a steel post. Grids are oriented on the cardinal compass directions. The 25 subsamples for each composite sample were located with a hand-held compass and tape measure using the northwest corner as the starting point.

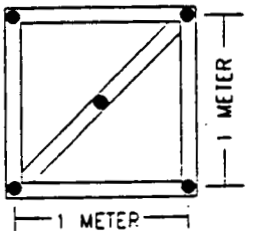
In addition to the CDH method, the Rocky Flats surface soil sampling method was used during the OU1 and OU2 sampling. The center of the eight 10-acre plots and two 2.5-acre plots of which portions fall within OU1 (Figure 2-1) were located and these positions served as the center for the Rocky Flats sample configuration. Ten discrete soil samples were collected as illustrated in Figure 2-2 and composited for plutonium, uranium, and americium analyses. The method involved using a soil sampling jig with a sample configuration of 10 by 10 by 5 centimeters (cm) deep. The subsamples were then composited into one sample resulting in a sample volume of 5,000 cm^3. This method is described in detail in EMD SOP GT.8.

An in-depth study has been proposed to investigate the vertical distribution of plutonium and americium in the buffer zone east and south of the 903 Pad Area and at the 881 Hillside. Twenty-six locations have been identified as proposed soil pit locations (Figure 2-3). Three soil pits are located at OU1. These pits were excavated to expose the soil profiles which were then described and sampled in order to assess the vertical distribution of plutonium^{-239}, $^{-240}$, and americium^{-241} in the surficial soils east and south of the Rocky Flats Plant. In addition to investigating the spatial and vertical extent of plutonium and americium, the surficial soil sampling program has been designed to study the physiochemical association of those actinides in both the static and mobile soil phases. The movement of both water and radionuclides (colloidal and dissolved) down the soil column is being studied as well as the hydrochemical relationships between the soil interstitial water and the seeps downslope.



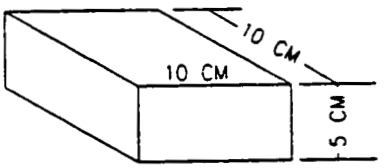
NOT TO SCALE

PLAN VIEW OF ROCKY FLATS METHOD TEMPLATE:



WOOD TEMPLATE WITH HOLES DRILLED IN EACH CORNER AND THE CENTER. NAILS WERE PLACED IN THE HOLES TO MARK THE SUBSAMPLE LOCATIONS. THE TEMPLATE WAS REMOVED AND THE SAMPLE JIG WAS USED TO COLLECT SAMPLES AT EACH SUBSAMPLE LOCATION.

SIDE VIEW OF ROCKY FLATS JIG:



× CENTER OF 10-ACRE POLYGON

● SUBSAMPLE LOCATIONS

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNITS NO. 1 AND 2
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

ROCKY FLATS METHOD SAMPLE SCHEME

FIGURE 2-2

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R33169.M...W-020692

Figure 2-3 Surficial Soil Sampling Location

Because previously collected data indicate that uranium contamination exists in surface soils at OU1, and that plutonium/americium contamination may be present from OU1 waste disposal (not simply arising from the 903 Pad Site), more detailed surface radionuclide data is necessary, i.e., the previous CDH and Rocky Flats Method Sampling provides only 10 samples each over the entire area of interest. In order to obtain information on the concentrations of these and other radionuclides as well as the levels of non-radioactive contaminants in the surface soils, a modified Rocky Flats sample collection technique will be used. Additional methods for sample collection were evaluated during the preparation of this sampling and analysis plan including two methods used at sites under the jurisdiction of EPA Region VIII. However, in order to obtain data to meet the comparability DQO objective, in conjunction with the fact the Rocky Flats Method for surface soil sample collection will provide the required information, Rocky Flats technique was selected. The proposed sampling program is described in Section 2.1.2 and the proposed analytical program is discussed in Section 2.2. This additional information will supplement the previously collected data to provide a more comprehensive evaluation of surface soil contamination at OU1.

2.1.2 Surficial Soil Sampling for Non-Radioactive Contaminants

The objective of this sampling program is to collect data representative of non-radioactive (and radioactive) contamination in surface soil at OU1 that can be used to estimate mean contaminant concentrations within an acceptable error of estimation. The average human health and environmental risks for each contaminant can then be estimated based on the mean concentrations, and the upper bound risks can be estimated from the upper limit of the 95% confidence interval of the mean. Random sampling will be conducted to fulfill this objective. The samples will be randomly selected surface soil composites taken from polygons that entirely cover the area of interest. This approach is valid because there is an equal likelihood that human or biotic exposure will occur in any one polygon in the area of interest. In order to design the sampling program, the following must be defined:

1) Objective of the sampling and analysis plan.

2) The area of interest.

3) The size of a polygon and the total number polygons (population size (N)).

4) Prescribed margin of error.

5) The compositing methodology for sampling a polygon.

6) The acceptable error of estimation of the mean.

7) The number of polygons to be sampled (sample size (n)).

8) The locations of the polygons to be sampled.

The principal objective of the sampling plan is to estimate contaminant concentration parameters such as the mean, variance, and confidence intervals so that exposure and source term estimates can be computed. This objective is primarily to support the baseline risk assessment where exposure scenarios that include incidental ingestion, inhalation of resuspended particulates, and dermal contact will be evaluated.

The area of interest is that encompassing the IHSSs within OU1 and the area topographically downgradient of those IHSSs to Woman Creek (Plate 1). The latter area is included because runoff has potentially spread contamination in surface soils as far as Woman Creek. Although wind dissemination of contaminated dust from OU1 would potentially spread contamination over a greater area, source concentrations are expected to be of such a low magnitude that contamination in this greater area would be insignificant.

The size of a polygon was selected considering the expected size of a target area of contamination. The site has been divided into 100-foot by 50-foot contiguous squares (Plate 1). Collection of a composite surface soil sample from within each of these polygons will be adequate to detect contamination that may be present relative to the exposure scenario for which it is intended. The existence of contamination in surface soils would be a result of contaminated soil dumping (IHSS 130) or from spills or leaks from the storage of numerous drums (IHSSs 119.1 and 119.2). This contamination, if present, would have been further spread by tracking from investigative activities and by runoff. Based on these past disposal practices and the subsequent additional disturbances to the soil, a target area of contaminated soil could conceivably be larger than 100 feet by 50 feet, and if smaller, may be identified by the

compositing strategy. Selection of the target area (100 feet by 50 feet [5,000 square feet]) also considers the "exposure unit" and "clean-up unit" concepts. For example:

- Neptune and Blacker (1986) identify the area of 5,000 square feet as a reasonable approximation of the area of a residential yard (an exposure unit). Also, 5,000 square feet is a sufficient area to intercept traplines, soil plots, and similar exposure areas that an ecological worker might encounter.

- Remedial alternatives that involve soil removal require information regarding contamination levels for practical sized "clean-up units" (Exner, et al; 1984) 100- by 50-foot units represent plausible dimensions for considering remedial options that may involve earth-moving equipment, that are amenable to statistical treatment, and that yield sample numbers that do not present undue logistical problems or exorbitant costs.

One composite soil sample will be taken from each polygon selected for sampling. Compositing method applicable for randomly selected, equal-size sampling units is discussed in Gilbert (1987). Discrete samples will be taken from the corners and center of the polygon and will be composited (Figure 2-4). The Rocky Flats Method of surficial soil sampling will be used to collect "discrete" samples although the method actually produces a local area composite. The method consists of sampling two 1-square meter areas or plots placed 1 meter apart. The method involves using a soil sampling jig with a sampling configuration of 10 by 10 by 5 cm deep. This method is described in detail in EMD SOP GT.8. The subsamples will be collected and composited into one sample resulting in a sample volume of 25,000 cm^3, and lithologic descriptions of the sample will be recorded.

A subset of approximately 20% of the samples (6 samples from OU1 and 2 background samples) will be collected and submitted for laboratory particle size analyses (hydrometer test) and bulk density testing. This information will be used to evaluate the relationship between contaminants and grain size as soil texture and content may control contaminant mobility and/or the presence of certain analytes. The bulk density analysis will enable the concentration units to be converted to concentration per unit area for comparison to the CDH standard. The suggested 20% frequency for collection of these samples will provide sufficient information to characterize the soils since the samples will be collected from the same soil type as discussed in Section 2.1.3.

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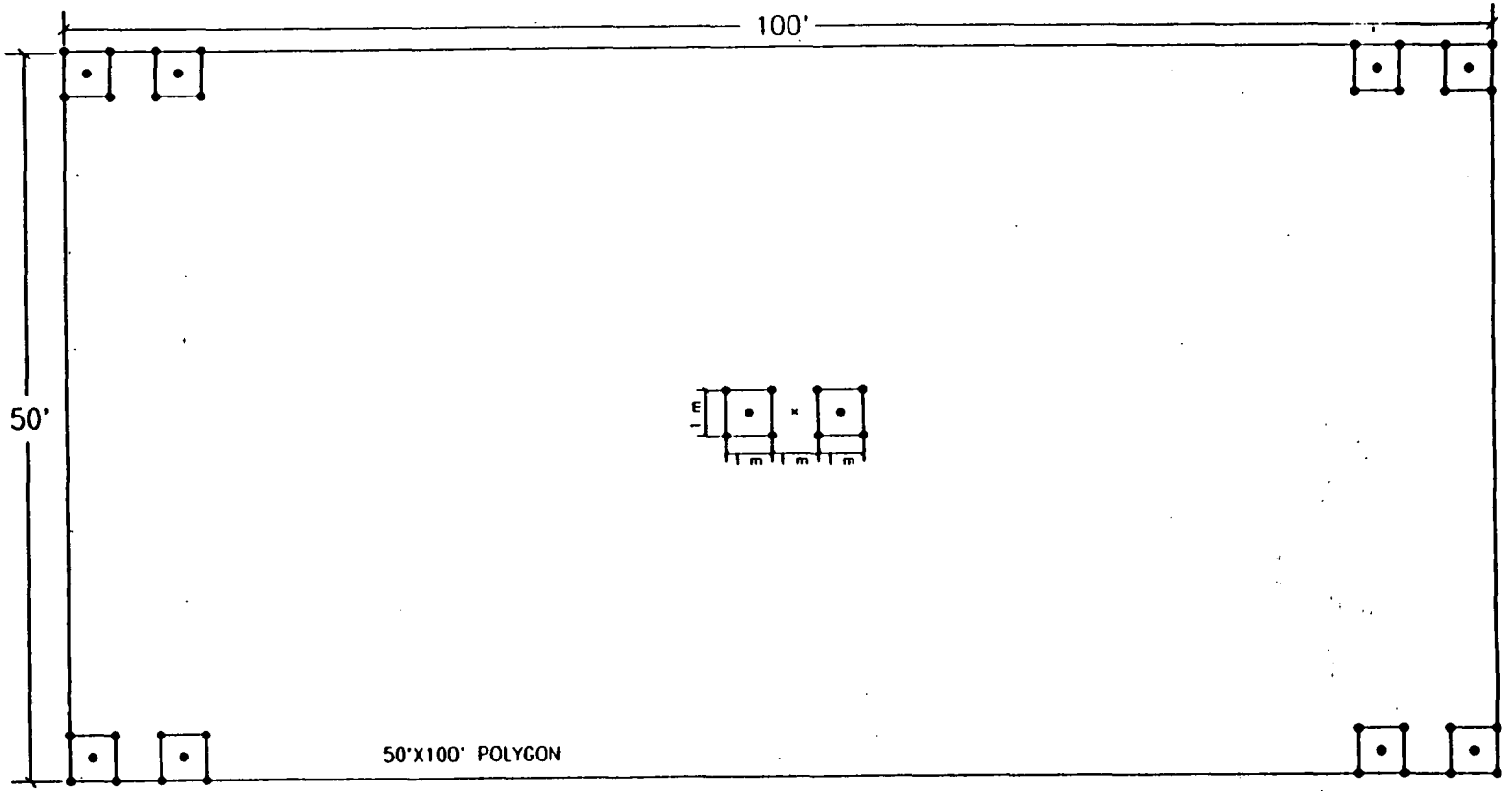
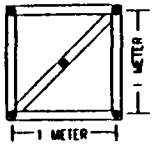
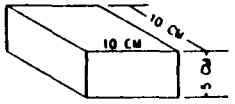


PLAN VIEW OF ROCKY FLATS METHOD TEMPLATE:



SIDE VIEW OF ROCKY FLATS JIG:



- ROCKY FLATS METHOD SUBSAMPLE LOCATIONS

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNITS NO. 1 AND 2
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

PROPOSED SAMPLING SCHEME

FIGURE 2-4

February, 1992

Finally, the actinide study conducted in the OU1 and OU2 study areas (EG&G, 1990b) will provide additional information on these parameters to supplement the proposed work if needed.

The laboratory will also perform analyses on the very fine fraction for 20% of the samples. The very fine fraction is defined as that which passes through the smallest standard sieve size (a -200 mesh sieve allows 74 micron particles to pass through). This analysis of the very fine fraction can be used to estimate the metal and radionuclide content of respirable ($\leq$ 10 micron) and entrainable (50-100 micron) particles that may pose a risk via the air pathway. In addition, 3 samples will be collected from the background area and analyzed for specific conductance, carbonate, pH, and total organic carbon for comparison with the previously collected data from the OU1 study area.

The northwest corner of each sample location polygon will be surveyed and identified with a marked steel post. The subsamples locations will be approximately located using a hand held compass and tape measure. A description of the sample location will be provided which will include the percent of vegetative cover in accordance with EMD Ecology SOP procedure No. 5.10 revision 1 DF.

The number of polygons (i.e., composite samples) to be sampled to estimate the population mean is a function of 1) the absolute margin of error (d) that can be tolerated; and 2) the acceptable probability (alpha) of exceeding that error. The basic equation for estimating the number of samples according to Gilbert (1987) is:

$$n=(t_{1-\alpha}\frac{\sigma}{d})^2$$

Where: n = number of samples required
$t_{1-\alpha}$ = Student T variate
σ = s = Sample standard deviation of the mean estimate
d = margin of error

For purposes of estimating n, the available surface soil data for estimating these parameters is the 881 Hillside Surface Soil Radionuclide Concentrations presented in Table 1-4. As shown

in Table 1-4 and Figure 1-4, plutonium concentrations are highest near the 903 Pad which is the expected source of contamination from resuspension and windborne transport of soil particles. Conversely, as indicated above and on Table 1-4, there are some elevated concentrations of uranium in surface soils at OU1 that could be indicative of a release from past disposal practice, e.g., a leaking drum or spill of uranium contaminated liquid waste (IHSS 119 was a past storage site for drummed waste). Uranium^{238} was used as the surrogate for parameter estimation because the wide data range suggests possible anthropogenic activity as its source. Uranium^{238} data also demonstrated the greatest degree of variation (compared to uranium ^{233,234} and plutonium) including several relatively high detections as well as the highest coefficient of variation (2.6). Further, it is likely there is an association of uranium and other waste constituents that may have been released. Using this data, the following parameters are obtained:

Student T variate: 1.734 (alpha 0.05, one-sided confidence limit and 18 degrees of freedom)

Sample standard deviation(s)	: 737 pCi/g
Sample mean (y_m)	: 287 pCi/g
Margin of error (d) =	0.9 y_m

For risk assessment, a reasonable bound on the error of estimation is 0.9 y_m, i.e., the 95% confidence interval for the mean is the mean plus or minus 90% of the mean. This level of uncertainty is small relative to the uncertainty associated with toxicological parameters used to estimate risk. Also, derivation of "d" in this manner is consistent with EPA Guidance (1989) which places special emphasis on the 95% upper confidence limit of the mean exposure concentration in developing the reasonable maximum exposure (RME).

Using this approach, a sample size of 24 polygons is estimated as follows:

$$n = (1.734(\frac{737}{(0.9)(287)}))^2$$

$$n = 24$$

Each of the polygons shown in Plate 1 were numbered sequentially and a random number generator was used to select 24 polygons for sampling. If a sample polygon was determined to be located within a disturbed area (road, french drain, etc.), the sample location was eliminated and replaced by another randomly selected polygon. These are identified on Plate 1. In addition to these polygons, to be conservative, biased sampling (4 additional composites) will be performed in polygons located at IHSSs 106, 130, 119.1 and 119.2 resulting in a total of 28 investigative composite samples. The biased sample locations within 119.1 has been selected to sample the area in the 1988 surface soil sampling (Table 1-4 and Figure 1-4) indicating the highest uranium concentration. These IHSSs are most likely to have surface soil contamination because there are areas where contaminated liquids were discharged (IHSS 106), drummed waste were stored (IHSSs 119.1 and 119.2) or wastes were buried at shallow depths (IHSS 130).

The previous computation of the number of polygons to be sampled is based on the need to estimate the population mean (contaminant concentration) with a bound on the error of estimation. This is satisfactory for assessing risks from contamination provided the contaminant concentrations do not include a significant background component. However, interpretation of the risk assessment results must consider the risk contribution simply due to background levels (for naturally occurring chemicals that may also be contaminants). Therefore, one must consider the eventual need for a statistical comparison to background in determining the number of polygons to be sampled. As discussed in the next section, analysis of variance (ANOVA) would be used to determine if significant differences exist between the mean background and OU1 concentrations, and thus determine the background component of the chemical concentrations at OU1. In determining the number of samples necessary to defect a particular difference in the means of two populations, the following formula can be used (EPA, 1990a):

$$n=[Z_{\alpha} + Z_{\beta})\sigma/d]^2 + 0.5\ Z^2_{\alpha}$$

Where: Z_{α} = Percentile of the standard normal distribution such that $P(Z \geq Z_{\alpha}) = \alpha$

Z_{β} = Percentile of the standard normal distribution such that $P(Z \geq Z_{\beta}) = \beta$

σ=s Standard deviation

d = Minimum detectable difference expressed as a fraction of the mean y_m (0.2 y_m recommended)

1-α= Confidence (80% recommended)

1-β= Power (90%) recommended)

Using the recommended values for the above parameters and the U^{238} statistics:

$$n=[(0.842+1.282)(737)/(0.2)(287]^2 + 0.5\ (0.842)^2 = 744$$

As can be seen, hundreds of samples should be taken to achieve the specified detectable difference, confidence, and power. However, cost and time constraints do not permit implementation of a surface soil sampling program of this magnitude. Furthermore, the above equation assumes the OU1 and background population variances are the same. The background population variance is not known but is certain to be less than the OU1 variance based on the presence of U^{238}, a site contaminant. Therefore the acceptable number of polygons to sample in order to achieve the desired power cannot be predicted at this time. As a result, the 24 polygons previously identified on page 2-11 will be used for the sampling plan.

2.1.3 Background Surficial Soil Sampling

Each OU1 sample concentration will be compared to the range (where range is defined as a statistical tolerance interval) of concentrations in background samples. A tolerance interval defines, with specified probability, a range of values that contain a discrete percentage of the population. OU1 samples whose concentrations which exceed the upper tolerance interval may indicate the influence of waste - related activities.

A tolerance interval defines a range that contains at least p% of population with P% probability (level of confidence), i.e., upon repeated sampling P% of the calculated intervals will contain p% of the population. It answers the question where do most of the observations lie. A probability (level of confidence) is associated with the tolerance interval since the interval is estimated from the date and therefore has some level of uncertainty associated with it. For the

tolerance interval to be useful in decision making, both "p" and "P" are chosen to be large, in this case, p = 0.95 and P = 0.95.

A 95% confidence level provides a reasonable compromise between the probability of Type I and Type II errors (Till, 1974). The number of sampling stations (n) in the background area determines the width of the tolerance interval, i.e., the more background stations, the narrower the interval and the more likely it will be that contamination at OU1 will be detected. Nine background stations have been established in order to obtain a 95% tolerance interval (95% of population within the one-sided interval) with a tolerance factor (Table 2-1) of three at the 95% confidence level, i.e., nine samples produce an upper limit of the tolerance interval at the mean plus three standard deviations of the sample population. A tolerance factor of three is used extensively to define engineering tolerances (Doctor, Gilbert, and Kinnison, 1986).

The equation for computation the 95% tolerance limits of normally distributed data is:

95% Tolerance Limits

$$L_1 = \bar{x} - Ks \text{ and}$$
$$L_2 = \bar{x} + Ks$$

Where:	L_1	=	lower 95% tolerance limit
	L_2	=	upper 95% tolerance limit
	$\bar{x}$	=	mean of the sample population of size n
	s	=	standard deviation of the sample population
	K	=	the normal tolerance factor. (Dependent on p, P, n and on whether the limit is one sided or two sided.)

The equation for the 95% tolerance limits of lognormally distributed data is:

TABLE 2-1

TOLERANCE FACTORS FOR NORMAL TOLERANCE LIMITS FOR 95% POPULATION AT 95% CONFIDENCE

n	Two-Sided	One-Sided
2	37.67	
3	9.916	7.655
4	6.370	5.145
5	5.079	4.202
6	4.414	3.707
7	4.007	3.399
8	3.732	3.188
9	3.532	3.031
10	3.379	2.911
11	3.259	2.815
12	3.162	2.736
13	3.081	2.670
14	3.012	2.614
15	2.954	2.566
16	2.903	2.523
17	2.858	2.486
18	2.819	2.453
19	2.784	2.423
20	2.752	2.396
21	2.723	2.371
22	2.697	2.350
23	2.673	2.329
24	2.651	2.309
25	2.631	2.292
26	2.612	
27	2.595	
28	2.579	
29	2.554	
30	2.549	2.220
35	2.490	2.166
40	2.445	2.126
45		2.092
50	2.379	2.065
60	2.333	
80	2.272	
100	2.233	1.924
200	2.143	1.836
500	2.070	1.763
1000	2.036	1.727
infinity	1.960	

Upper 95% Tolerance Limit

$$L_2 = \exp(\bar{y} + Ks_y)$$

Where:

L_2	=	Upper 95% Tolerance Limit
$\bar{y}$	=	average of $\log_e$ transforms of raw data
K	=	the normal tolerance factor. (Dependent on p, P, n and on whether the limit is one sided or two sided.)

No lower limit equation is provided because pH is not expected to have a lognormal distribution.

If concentration of contaminants in surface soil exceed the background tolerance intervals, classical ANOVA techniques will be employed to determine if the mean concentration of a chemical in surface soil at OU1 is significantly different from the mean background concentration. The power of the ANOVA cannot be estimated at this time because the variance of the background population is unknown.

Surface soil samples will be collected in areas west and north of the Plant in order to characterize background conditions (Figure 2-5). The Rocky Flats methodology will be used for comparability to OU1 data.

A review of the proposed background area (northwest area of the plant property near the wind site) revealed that soil types consistent with the soil types identified in the OU1 study area (Figure 2-1) are present in the Rock Creek Drainage vicinity. As the prevailing wind direction is from the northwest, this area is presumed to nominally or imperceptably impacted by redistribution of contaminants from plant operations. For comparison with OU1 data, the background sample locations will be collected in soils which are comparable in content as soil texture and structure affect the presence and/or mobility of certain analytes. Therefore, the background surface soil samples will be collected on a south facing slope of the Rock Creek Drainage for comparison with OU1 data (Figure 2-4) within the Denver-Kutch-Midway soil series. Table 2-2 provides a brief description of the soil types in the selected background area. It is recognized that due to the variability in wind direction, the selected background area, may not provide sample data representative of true background concentrations; however, the collected

Figure 2-5

data will provide useful information for comparison with the data collected at OU1. Although an off-site location may provide better data, administrative constraints currently prevent off-site sampling. In conjunction with this program, a literature search for information on representative surface soil concentrations in potential background areas will be conducted.

The proposed background area has been divided into 100-foot by 50-foot polygons and sequentially numbered. Nine polygons were selected for sampling with the use of a random number generator. Nine locations were specified to ensure consistency with the background geochemical characterization program. Nine sample locations have been established for background characterization to obtain a 95% tolerance interval with a 95% confidence level. The proposed locations are presented in Figure 2-5. Samples will be collected for analysis of all parameters presented in Table 2-1 and will be obtained by using the Rocky Flats Method. In the OU1 and OU2 study areas, the CDH method was used to collect information for comparison with the CDH construction standard, and provides sufficient data for evaluation; therefore, it is not necessary to determine background concentrations using this method. The CDH method is primarily used for investigating the resuspendible fraction and not for total contaminant inventory. The Rocky Flats method is an effective method for evaluating the presence and concentrations (i.e., inventory) of surface soil contamination. In conjunction with the chemical analyses, particle size analysis, and bulk density testing will be conducted on randomly selected samples from the OU1 and background areas.

2.1.4 Sediment Sampling

Completion of the DQO process, aided by the conceptual model, revealed a data gap in the quantity of sediment data downgradient of OU1. To facilitate completion of the OU1 baseline risk assessment, three additional sediment stations are proposed for OU1 as the conceptual model indicates the potential for surface soil contamination migration to the stream. These locations are in Woman Creek and are displayed on Plate I. As illustrated in the conceptual model (Figure 1-5), there is a potential of contamination migration from the surface soils to the SID and Woman Creek sediments via resuspension by wind and surface runoff. Sufficient sampling locations are located in the SID (SED 37, 38, 39, and 28). The three proposed stations (SED

Table 2-2

Soil Types in the Selected Background Area

Series	Family	Phase	Min-Max Slope (%)	Infiltration Rate	Soil Type*
Denver-Kutch-Midway	Torrertic Arguistolls	clay loam	9-25	slow	31
Flatirons	Aridic Plaeustols	sandy loam	0-3	slow	46
Haverson	Ustic Torrifluvents	loam	0-3	moderate	60
Nederland	Aridic Arguistolls	sandy loam	15-50	moderate	100

* Soil type number corresponds to soil type exhibited in Figure 2-5.
Source: U.S. Department of Agriculture, 1980.

40, 41, and 42) within Woman Creek will provide information required to characterize the sediments and will be added to the stations currently being sampled as part of the site wide surface water and sediment characterization program. The samples will be collected in accordance with the appropriate EMD SOPs (SW.07, R1). The proposed stations coupled with the existing stations will provide adequate data points to detect contamination in the sediments of the Woman Creek drainage and the SID. The analytical should include the analytes presented in the S-SCAR table (Table 1-4) as well as the Target Compound List VOCs to investigate the migration potential for ground water to surface water and sediments.

2.1.5 Air Sampling

Review of the surface soils-based Site Conceptual Model (Figure 1-5) in conjunction with the discussion of Data Uses in Section 1.2.2.1 indicates that inhalation of resuspended particulate matter will be a significant pathway for evaluation of exposure for all on-site scenarios. Inhalation exposure is often evaluated by assuming (1) a conservative suspended particulate concentration such as 1 milligrams per cubic meter (mg/m^3) and (2) that the contaminant concentration of the suspended particulate matter is equal to the mean soil concentration. Using this approach, intakes and exposure doses are readily computed. To eliminate some of the uncertainty in this process, suspended particulate measurements will be obtained using personal air sampling equipment and traditional industrial hygiene techniques. Low-flow air samples will be placed on site by personnel conducting intrusive field activities to identify actual suspended particulate levels. One air sample will be collected on four different days from each of three field personnel. The fourth sample will be obtained from a fixed position upwind to provide background concentrations data. All samples will be collected for 8 hours to provide time-weighted average measurements. Analyses will include total suspended particulate and respirable particulate matter. An attempt will be made to collect at least one day's samples during ambient conditions which reflect a worst-case scenario (e.g., high wind). The process will be repeated on four separate days, providing a total of 16 measurements. Using the Gilbert (1987) equation, PM-10 data collected in the vicinity of the 903 Pad site during 1991, 16 samples are more than adequate for estimating mean particulate concentrations as well as for calculating 95%

confidence intervals. The sampling and analyses will be performed in accordance with National Institute of Occupational Safety and Health (NIOSH) methods.

2.2 ANALYSIS PLAN

The proposed analytical program for surface soils at OU1 is presented in Table 2-3. As indicated, the list is comprehensive to include are expected contaminant classes based on the disposal history for the site. However, VOCs and acid extractables are not included because of the unlikelihood that these classes of compounds would be present in the surface soils.

2.2.1 Radiochemistry

Composite pedologic samples collected during the surficial soil sampling program for OU1 from the three 10 acre grids (Figure 2-1) are being analyzed for plutonium$^{239, 240}$, americium^{241}, and uranium$^{233, 234, 235, \text{and } 238}$. However, to provide additional information on radionuclide surface soil contamination, the samples collected in OU1 during this program will be analyzed for the parameters listed in Table 2-1. Background soil samples will also be analyzed for these radionuclides for comparison with the OU1 data. Radionuclide analyses will be performed in accordance with method referenced in the GRRASP.

2.2.2 Non-Radioactive Analytical Parameters

Organic and metal analyses as well as additional analyses will be performed using CLP RAS as specified in the GRRASP. The analytical parameters are presented in Table 2-3.

Table 2-3
Proposed OU1 Surface Soil Sampling Parameters

TOTAL METALS

- Antimony
- Arsenic
- Beryllium
- Cadmium
- Chromium
- Copper
- Iron
- Lead
- Manganese
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Zinc

OTHER PARAMETERS

- Ammonia
- Nitrate-Nitrite
- Oil and Grease
- Specific Conductance*
- Carbonate*
- pH*
- Total Organic Carbon*
- Particle Size Analysis**
- Bulk Density Testing**
- Total Suspended Particulate***
- Respirable Particulate Matter***

TOTAL RADIONUCLIDES

- Gross Alpha
- Gross Beta
- Uranium $^{233, 234, 235, \text{and } 238}$
- Radium $^{226, 228}$
- Plutonium $^{239, 240}$
- Americium ^{241}
- Radium $^{226, 228}$

ORGANICS: SEMI-VOLATILES BASE/NEUTRAL EXTRACTABLES

Target Compound List -

- bis(2-Chloroethyl)ether
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichlorobenzene
- bis(2-Chloroisopropyl)ether
- N-Nitroso-Dipropylamine
- Hexachloroethane
- Isophorone
- bis(2-Chloroethoxy)methane
- 1,2,4-Trichlorobenzene
- Naphthalene
- 4-Chloroaniline
- Hexachlorobutadiene
- 2-Methylnaphthalene
- Hexachlorocyclopentadiene
- 2-Chloronaphthalene
- 2-Nitroaniline
- Dimethylphthalate

ORGANICS: SEMI-VOLATILES BASE/NEUTRAL EXTRACTABLES (con't.)

- Acenaphthylene
- 3-Nitroaniline
- Acenaphthene
- Dibenzofuran
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Diethylphthalate
- 4-Chlorophenyl Phenyl ether
- Fluorene
- 4-Nitroaniline
- N-nitrosodiphenylamine
- 4-Bromophenyl Phenyl ether
- Hexachlorobenzene
- Phenanthrene
- Anthracene
- Di-n-butylphthalate
- Fluoranthene
- Pyrene
- Butyl Benzylphthalate
- 3,3'-Dichlorobenzidine
- Benzo(a)anthracene
- bis(2-ethylhexyl)phthalate
- Chrysene
- Di-n-octyl Phthalate
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(a)pyrene
- Indeno(1,2,3-cd)pyrene
- Dibenz(a,h)anthracene
- Benzo(g,h,i)perylene

ORGANICS: PESTICIDES/PCBs

Target Compound List -

- alpha-BHC
- beta-BHC
- delta-BHC
- gamma-BHC (Lindane)
- Heptachlor
- Aldrin
- Heptachlor Epoxide
- Endosulfan I
- Dieldrin
- 4,4'-DDE
- Endrin
- Endosulfan II
- 4,4'-DDD
- Endosulfan Sulfate
- 4,4'-DDT
- Endrin Ketone
- Methoxychlor
- alpha-Chlordane
- gamma-Chlordane
- Toxaphene
- AROCLOR-1016
- AROCLOR-1221
- AROCLOR-1232
- AROCLOR-1242
- AROCLOR-1248
- AROCLOR-1254
- AROCLOR-1260

* On three background samples
** On 20% of the surface soil samples.
*** On air samples only. Air samples to be collected by EG&G personnel.
NOTE: Sediment samples will also be analyzed for TCL VOCs.

2.3 DATA MANAGEMENT

Field and laboratory data collected during the Phase II RFI/RI will be incorporated into the Rocky Flats Environmental Database System (RFEDS). The RFEDS is used to track store, and retrieve project data. Data will be input to the RFEDS via diskettes subsequent to data validation as outlined in the ER Program QAPjP (EG&G, 1991a). Hardcopy reports will then be generated from the system for data interpretation and evaluation.

SECTION 3
QA/QC

The SAP addresses the procedures for conduct of the proposed field activities as well as the proposed analytical suite for the samples collected during the surface soil sampling program. A QAPjP is an element of the SAP which identifies QA objectives for data collection, analytical procedures, calibration, and data reduction, validation, and reporting. The QAPjP, in conjunction with SOPs, complete the SAP. The ER Program QAPjP and the Rocky Flats EMD SOPs have been prepared by EG&G and submitted to the EPA and the CDH for review and comment. All field and analytical procedures will be performed in accordance with the methods described in the QAPjP and SOPs unless otherwise specified in this SAP.

3.1 INTERNAL QC CONTROL SAMPLES

The objective of the QAPjP is to provide a framework to ensure that all sampling and analytical data achieve specific data quality standards. These standards ensure that PARCC parameters (Section 1.2.2.5) for the data are known and documented. All samples sent for CLP Level IV analyses will be handled in accordance with CLP guidelines. QC procedures for non-CLP method will be developed as needed using standard methods.

QC samples may be collected in conjunction with the investigative samples to provide information on data quality. Field (rinsate) blanks, trip blanks, field duplicates, laboratory blanks, laboratory replicates, and laboratory matrix spike and matrix spike duplicates are the commonly collected samples. Trip blanks generally pertain to volatile organic analyses, and because volatile organic analyses will not be performed on the samples collected during the surface soil sampling program, they are not further discussed.

However, a trip blank will be collected for TCL VOC analysis during the sediment sampling program to investigate sample container integrity and the potential for sample contaminant during transport to and from the laboratory.

Field blanks (rinsate blanks) will be collected by pouring distilled/deionized water through decontaminated sample collection equipment and submitting the sample for the same analyses as the investigative samples. Field (rinsate) blanks monitor the effectiveness of decontamination procedures. Field replicates will be collected and analyzed to provide information regarding the natural variability of the sampled media as well as evaluate analytical precision. Table 3-1 presents the suggested guidelines for collection of field QC samples (EPA, 1987) and are consistent with the suggested guidelines listed in the QAPjP. Table 3-2 presents the total number of investigative and background samples to be collected during implementation of this SAP.

Laboratory blanks and replicates test analytical procedures and conditions. Laboratory matrix spikes and matrix spike duplicates measure analytical accuracy by providing data on matrix interferences and components interfering with instrument responses. The frequency of collection and analysis of laboratory QC samples is dictated by the prescribed analytical method as cited in the GRRASP. The precision and accuracy standards detailed in the proposed analytical method, are sufficient for the project.

3.2 ACCURACY

Analytical accuracy is expressed as the percent recovery of an analyte which has been used to fortify an investigative sample or a standard matrix (e.g., blank soil, analyte-free water, etc.) at a known concentration prior to analysis, and is expressed by the following formula:

$$Accuracy = \%\ Recovery = \frac{A_T - A_O\ X\ 100\%}{A_F}$$

Where:
- A_T = total amount found in fortified sample
- A_o = amount found in unfortified sample
- A_F = amount added to sample

Table 3-1

Guidelines for Field Quality Control Sample Collection Frequency

Analytical Parameter	Trip Blank	Field (rinsate) Blank	Field Replicate
VOCs	1 in 20	1 in 20	1 in 20
Metals	NA	1 in 20	1 in 20
Oil and Grease	NA	1 in 20	1 in 20
Radionuclides	NA	1 in 20	1 in 20
TCL semi-volatiles	NA	1 in 20	1 in 20
TCL Pesticide/PCBs	NA	1 in 20	1 in 20
Other	NA	1 in 20	1 in 20

NA - Not applicable

Table 3-2

Surface Soil Sample Frequency

Analytical Parameter	Total Surface Soil Investigative Samples	Total Background Samples	Trip Blanks	Field Duplicates[a]	Field (rinsate) Blanks[a]	Total Samples for Lab
Metals[b]	34	11	0	4[c]	3	52
Oil and Grease	28	9	0	3	3	43
Radionuclides[b]	34	11	0	4[c]	3	52
TCL Semi-Volatiles (base/neutral extractable)	28	9	0	3	3	43
TCL Pesticide/ PCBs	28	9	0	3	3	43
Other (specific conductance, carbonate, pH, total organic carbon)	0	3	0	1	NA	4
(ammonia, nitrate-nitrite)	28	9	0	3	3	43
(particle size analysis and bulk density testing)	6	2	0	1	NA	9
Air Samples (total suspended particulate and respirable particulate matter)	16	0	0	0	NA	16
Sediment Samples (Full suite plus TCL VOCs)	3	0	1[d]	1	1	6

[a] 5% for soil samples.
[b] 20% will be also submitted for analysis of the very fine fraction.
[c] One duplicate analysis will be performed on the analysis of the very fine fraction.
[d] Trip Blank for TCL VOCs only.

NA = Not applicable

The fortified concentration will be specified by laboratory quality control requirements, or may be determined relative to background concentrations observed in the unfortified sample. In the latter case, the fortified concentration should be two to five times the background concentration to permit a reliable recovery calculation.

The quality assurance objectives for organic and inorganic analyses are tailored to the analytical technique used, and are discussed separately in subsequent sections.

3.2.1 Metals Analysis

For analysis of metals analytical accuracy is obtained from the analyte recovery measured in a laboratory control standard and/or sample fortified (spiked) with the element of interest. For this project, ten percent of the environmental samples submitted for analysis will be spiked. The QA objectives for accuracy in routine metals analysis for these QC samples are summarized below:

Sample	Recovery (%)
Laboratory Control Standard (LCS)	80-120
Spike Field Sample	75-125

Recovery values outside the QC limits for a Laboratory Control Standard (LCS) for the metals to be analyzed in this project will trigger compensatory action. Recovery values for fortified field samples are advisory only, and do not trigger corrective action.

3.2.2 Organic Analysis (GC and GC/MS)

For organic analysis, analytical accuracy is obtained from the surrogate recovery measured in each sample and blank and/or from the analysis of samples or blanks which have been fortified with a select number of target analytes. For this project ten percent of the samples submitted for analysis will be fortified.

The QA objectives for accuracy are summarized in Table 3-3 for GC/MS surrogates and in Table 3-4 for GC/MS fortified samples. The recovery values for surrogates and target analytes in investigative sample analyses are advisory for routine laboratory analysis, whereas only recovery values for standard matrix samples (e.g., blanks) are used for triggering corrective action.

3.3 SENSITIVITY

The sensitivity for each analytical parameter using the assigned methodology is sufficient to meet the project requirements. The project specific sensitivities (quantitation limits) for each parameter are listed in the GRRASP or CLP method and are listed in Table 1-7.

3.4 QUALITY ASSURANCE OBJECTIVES FOR PRECISION

Analytical precision is calculated by expressing the difference between duplicate sample analytical results relative to the average of those results for a given analyte expressed as a percentage. precision can be expressed by the formula:

$$\% \ RPD = \frac{|C_1 - C_2| \ X \ 100\%}{(C_1 + C_2)} / 2$$

where:

RPD	=	Relative percent difference
C_1	=	Concentration of analyte in sample
C_2	=	Concentration of analyte in replicate

On the occasion when three of more replicate analyses are performed, precision is expressed as the standard deviation of the analytical results of the replicate determination relative to the average of those results for a given analyte as a percentage. This precision measurement,

Table 3-3

Quality Assurance Objectives for Accuracy for Organic Surrogate Analyses

Fraction**	Surrogate Compound	% Recovery Limits* Low/Medium Water	% Recovery Limits* Low/Medium Soil/Sediment
BNA	Nitrobenzene-d5	35-114	23-120
BNA	2-Fluorobiphenyl	43-116	30-115
BNA	p-Terphenyl-d14	33-141	18-137
BNA	Phenol-d5	10-94	24-113
BNA	2-Fluorophenol	21-100	25-121
BNA	2,4,6-Tribromophenol	10-123	19-122

*U.S. EPA (1986). SW-846, 3rd Edition. Methods 8240 and 8270.
**BNA Semivolatile Base/Neutral Extractable.

Table 3-4

Quality Assurance Objectives for Accuracy and Precision for Organic Target Compound Analyses

Fraction	Matrix Spike Compound	% Recovery Limits Water	% Recovery Limits Soil/Sed	% RPD Limits Water	% RPD Limits Soil/Sed
BN	1,2,4-Trichlorobenzene	39- 98	38-107	28	23
BN	Acenaphthene	46-118	31-137	31	19
BN	2,4-Dinitrotoluene	24- 96	28- 89	38	47
BN	Pyrene	46-127	35-142	31	36
BN	N-nitroso-di-N-propylamine	41-116	41-126	38	38
BN	1,4-Dichlorobenzene	36- 97	28-104	28	27
PESTICIDE	Lindane	56-123	46-127	15	50
PESTICIDE	Heptachlor	40-131	35-130	20	31
PESTICIDE	Aldrin	40-120	34-132	22	43
PESTICIDE	Dieldrin	56-126	31-134	18	38
PESTICIDE	Endrin	56-121	42-139	21	45
PESTICIDE	4,4-DDT	38-127	23-134	27	50
PCB	Arochlor 1254	Not established		30*	50*

% RPD - Relative Percent Difference

This list includes those compounds most commonly used for QA/QC accuracy and precision control in the groups of analytes shown based on current U.S. EPA CLP requirements. (USEPA SOW 2/88 as revised through 5/89.) Stated control limits will be updated to the current CLP protocol, as required.

* Laboratory Determined Limits

percent relative deviation (% RSD), will have QA objectives identical to those for % RPD, and can be expressed by the formula:

$$\%RSD = \frac{\Sigma\,[C^2 - ((C)^2/n))]/(n-1)\ X\ 100\%}{(C_1 + \ldots C_n)/n}$$

where:

RSD	=	percent relative deviation
C	=	concentration of analyte in the sample, and (C_1 + C_2 +...C_n) represents the sum of the concentration of each replicate
n	=	number of replicate analyses
Σ	=	"the summation of"

The QA objectives for metals (and other inorganic parameters) analysis are different from those for organic analyses. These QA objectives are discussed separately in subsequent sections below.

3.4.1 Metals Analyses

For the metals analyses, the QA objective for precision is ± 20% RPD for soils (EPA, 1990b). Percent RPD values outside the QC limits for duplicate LCS analyses will trigger corrective action. Percent RPD for duplicate investigative sample analyses are advisory only. For this project, five percent of the investigative samples submitted for analysis will be analyzed in duplicate.

3.4.2 Organic Analyses (GC, GC/MS)

For organic analyses, precision is measured by comparison of the recovery of a select number of target analytes in duplicate fortified samples for duplicate fortified blanks (e.g., matrix spike/matrix spike duplicate (MS/MSD), and/or blank spike/blank spike duplicate (MS/MSD). For typical GC/MS or GC analysis, two sample containers are collected for each analysis. Ten percent of the samples are collected in triplicate; one for investigative sample analysis, one for matrix spike analysis, and one for a matrix spike duplicate analysis. The QA objectives for precision as expressed by the % RPD for duplicate analysis of target analytes are given in Table

3-3. These RPD limits for investigative samples provide an indication of sample homogeneity and representativeness.

The laboratory QA Officer will be responsible for insuring analytical results meet QC criteria described for the appropriate EPA analytical method and for implementing corrective actions and specified in the analytical methods. Corrective actions may include a laboratory audit to resolve problems and reanalysis of the samples or, if difficulties cannot be resolved, resampling and submittal to another laboratory.

3.5 REPRESENTATIVENESS

Representativeness expresses the degree to which sample data accurately and precisely represent a population characteristic, parameter variations at a sampling point, or an environmental condition. Care has been taken in the design of the sampling program (described in Section 2 of the SAP) to ensure that sample locations are selected properly, consistency in sample collection techniques is maintained, that a sufficient number of samples are collected to accurately reflect conditions at the site, and that samples are representative of the sampling locations. The statistical method used to derive the number of investigative samples to be collected will provide data which is representative of the study area.

3.6 DATA COMPARABILITY

Published standard sampling and analytical methods will be used for chemical analyses. Reports will contain final results (uncorrected for blanks and recoveries), methods of analysis, levels of detection, surrogate recovery data, and method blank data. In addition, special analytical problems, and/or any modifications of referenced methods will be noted. The number of significant figures reported will be consistent with the limits of uncertainty inherent in the analytical methods. Consequently, most analytical results will be reported to no more than two (2) significant figures. Data are normally reported in units commonly used for the analyses performed. Concentrations in liquids are expressed in terms of weight per unit volume (e.g., milligrams per liter). Concentrations in solid or semi-solid matrices are expressed in terms of weight per unit weight of sample (e.g., micrograms per gram). Reported detection limits will

be the concentration in the original matrix corresponding to the low level instrument calibration standard after concentration, dilution, and/or extraction factors are accounted for, unless otherwise specified by program requirements. Through the use of the Rocky Flats method, the data collected during implementation of this SAP will be comparable with previously collected data. In addition, analysis of previously obtained samples were performed through the use of CLP-RAS and therefore will be comparable to the data resulting from the analyses of the samples collected during this program.

3.7 COMPLETENESS

Completeness is a measure of the amount of valid data compared to the amount of planned data for a specific set of measurements. It is expressed as a percentage. Historical completeness for CLP-RAS is 80 to 85%. For sampling completeness, a goal of 90% has been set for this program

3.8 SAMPLE MANAGEMENT

Field preparation requires organizing sample containers and sample labels, and documenting in an orderly, systematic manner that promotes consistency and traceability of data. Table 3-5 lists the appropriate sample containers, volume, preservative, and holding time for each proposed analytical suite/parameter. The precleaned sample containers will be furnished by the EG&G selected contract analytical laboratory conducting the analysis.

Each collected sample will be properly labeled, sealed, and placed in an appropriate container for transport to the analytical laboratory. Chain-of-custody seals which serve as tamper detection devices will be placed around the top of each sample container and shipping vessel. All collected samples will be logged onto an appropriate chain-of-custody form. Custody transfers made will be documented on the form with the signature of the relinquishing and receiving parties followed by the date of the transfer. All appropriate chain-of-custody protocols will be implemented throughout the collection, shipping, and analysis activities.

Table 3-5

Sample Containers, Volume, Preservation, and Holding Times

Analyte	Sample Container[a]	Sample Volume	Preservation	Holding Time
Metals	8 oz glass	10 g	None	6 months[b]
Oil and Grease	4 oz glass	10 g	Cool, 4 degree C	28 days
Radionuclides	8 oz glass	100 g	None	None
TCL Semi-Volatiles (base/neutral extractables)	8 oz glass	10 g	Cool, 4 degree C	7/40[c]
TCL Pesticide/ PCBs	8 oz glass	20 g	Cool, 4 degree C	14/40[d]
Particle Size Analysis and Bulk Density Testing	16 oz glass	200-500 g	None	None
Ammonia and Nitrate-Nitrite	8 oz glass	110 g	Cool, 4 degree C	28 days
Other	16 oz glass	250 g	Cool, 4 degree C	14 days

[a] Clear wide mouth glass jars
[b] Holding time for mercury is 28 days
[c] 7 days from collection to extraction and 40 days from extraction to analysis
[d] 14 days from collection to extraction and 40 days from extraction to analysis

3.9 DATA REPORTING

The chain-of-custody documentation will be included in the data package received from the analytical laboratory. The analytical data will be submitted to EG&G via electronic diskette for input into the RFEDS data tracking system.

SECTION 4

REFERENCES

DOE, 1987, Comprehensive Environmental Assessment and Response Program, Phase 2: Rocky Flats Plant, Draft Site-Specific Monitoring Plan; U.S. Department of Energy.

DOE, 1989, An Assessment of Criticality Safety at the Department of Energy, Rocky Flats Plant, Golden, Colorado, July to September 1989; Contract DE-AC01-88EH79081, Task 20.

Doctor, P.G., R.O. Gilbert, and R.R. Kinnison, 1986, Ground-Water Monitoring Plans and Statistical Procedures to Detect Leaking at hazardous Waste Facilities, Draft Report for U.S. Environmental Protection Agency, Pacific Northwest laboratories, Richland, Washington.

EG&G, 1990a, Draft Rocky Flats Plant Site-Wide Quality Assurance Project Plan for CERCLA Remedial Investigations/Feasibility Studies Activities, ER Program, Rocky Flats Plant, Golden, colorado, August 1990.

EG&G, 1990b, General Radiochemistry and Routine Analytical Services Protocol (GRRASP), ER Program, Rocky Flats Plant, Golden, Colorado, February 1990.

EG&G, 1990c, Background Geochemical Characterization Report for 1989, December 1990.

EG&G, 1990d, Rocky Flats Plant Site Environmental Report, January through December 1989.

EG&G, 1991a, Final Phase III RFI/RI Work Plan for Operable Unit No. 1, Revision 1, August 1991.

EG&G, 1991b, Final Phase II RFI/RI Work Plan (Alluvial) for Operable Unit No. 2, Technical Memorandum No. 1, August 1991.

EG&G, 1991c, Addendum to the Final Phase III RFI/RI Work Plan, Technical Memorandum No. 2, Chemical Analysis Plan for Operable Unit No. 1, August 1991.

EG&G, 1991d, EMD Operating Procedures, Manual No. 5-21000-ODS-GT, August 1991.

EPA, 1987, Data Quality Objectives for Remedial Response Activities; EPA 154-IG-871003, OSWER Directive 9355.0-7B, March 1987

EPA, 1989, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Office of Emergency and Remedial Response, Washington, DC.

EPA, 1990a, Guidance for Data Useability in Risk Assessment, Solid Waste and Emergency Response, EPA/540/G-90/008.

EPA, 1990b, USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis, Multi-Media High Concentration, October 1990.

EPA, 1991, Health Effects Assessment Summary Tables (HEAST), Annual Fiscal Year 1991, OSWER (OS-230).

Exner, J.H., S. Wojinski, R.O. Gilbert and R.R. Kinnison, 1984, A Sampling Strategy for Cleanup of Dioxin Soil.

Gilbert, R.O., 1987, Statistical Methods for Environmental Pollution Monitoring, Van Norstrand Reinhold Company, New York.

Lawton R., 1989, Personal Communication with Richard Lawton, Rockwell International.

Neptune, E., And Blacker, 1986, Applying Total Quality Principles to Superfund Planning, Seventeenth Annual National Energy Division Conference.

Rockwell International, 1987, Annual Environmental Monitoring Report: January-December 1986; Rockwell International, Rocky Flats Plant, Golden, Colorado Report RFP-ENV-86.

Schaeafer, R.L., Mendenhall, W., and Ott, L., 1988, Elementary Survey Sampling, Duxbury Press, Boston, MA.

Till, R., 1974 Statistical Methods for the Earth Scientist, Halsted press, John Wiley and Sons, Inc. New York, NY.

U.S. Department of Agriculture, 1980, Soil Survey of Golden Area, Colorado - Parts of denver, Douglas, Jefferson and Park Counties; Soil Conservation Service.

U.S. Fish and Wildlife, 1986a, Chromium Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.6), Department of the Interior, Contaminant Hazard Reviews, Report No. 6, January 1986.

U.S. Fish and Wildlife, 1986b, Polychorinated Biphenyl Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.7), Department of the Interior, Contaminant Hazard Reviews, Report No. 7, April 1986.

U.S. Fish and Wildlife, 1987a, Mercury Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.10), Department of the Interior, Contaminant Hazard Reviews, Report No. 10, April 1987.

U.S. Fish and Wildlife, 1987b, Polycyclic Aromatic Hydrocarbon Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.11), Department of the Interior, Contaminant Hazard Reviews, Report No. 11, May 1987.

U.S. Fish and Wildlife, 1988, Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.14), Department of the Interior, Contaminant Hazard Reviews, Report No. 14, April 1988.

U.S. Fish and Wildlife, 1990a, Evaluating Soil Contamination, Biological Report 90(2), U.S. Department of the Interior.

U.S. Fish and Wildlife, 1990b, Chlordane Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.21), Department of the Interior, Contaminant Hazard Reviews, Report 21, July 1990.

U.S. Fish and Wildlife, 1990c, Paraquat Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review, Biological Report 85(1.22), Department of the Interior, Contaminant Hazard Reviews, Report 22, August 1990.

PUBLIC HEALTH RISK ASSESSMENT
881 HILLSIDE AREA (OU1)
TECHNICAL MEMORANDUM NO. 6
EXPOSURE SCENARIOS

Revision 4.0

Department of Energy
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM

June 1992

EXECUTIVE SUMMARY

This Exposure Scenario Technical Memorandum is presented as part of the Public Health Evaluation (PHE) of the Baseline Risk Assessment (BRA) for the 881 Hillside Area Operable Unit #1 (OU1) at the Rocky Flats Plant (RFP). It does not include the Environmental Evaluation (EE) portion of the BRA. The purpose of this technical memorandum is to describe "present, potential, and reasonable use [scenarios] with a description of the assumptions made and the use of data" as specified in the Interagency Agreement (IAG 1991). The objective is to present information on current and future land use to enable selection of reasonable scenarios to be used for the PHE. Potential scenarios are identified according to the Environmental Protection Agency (EPA) concept of reasonable maximum exposure (RME), defined as conservative, but within a realistic range of exposures, and are "reasonably expected to occur at a site" (EPA 1990b). The term "potential" is used to mean " a reasonable chance of occurrence within the context of the reasonable maximum exposure scenario" (EPA 1990a). Using this approach, the potential or likelihood of a scenario occurring is classified as improbable, plausible, or credible; defined in this document as 1) improbable - unlikely to occur, 2) plausible - conceivable, though not expected, and 3) credible - believable with reasonable grounds.

The physical environment of RFP is important in assessing the key mechanisms by which contaminants may be transported from sources to receptor populations. The climate is characterized as semi-arid, receiving approximately 0.38 meters [m] (15 inches) of precipitation annually. Winds blow predominantly from the northwest quadrant to the southwest, and exceed 15 meters per second [m/s] (34 miles per hour [mph]) approximately 5% of the year. The predominant geologic units at OU1 include the Rocky Flats Alluvium, colluvium, valley-fill alluvium and the Arapahoe and Laramie Formations. The water table at OU1 fluctuates seasonally by several feet. Groundwater flow is generally to the south and southeast and occurs in colluvium and weathered bedrock. The French drain was designed to capture shallow ground water at OU1. This physical environment includes a riparian habitat

and is part of a unique grassland community, providing protection for such animals as deer, coyotes, rabbits, many varieties of birds, and several types of reptiles.

RFP is located approximately 26 kilometers [km] (16 miles) northwest of Denver, Colorado and approximately 16 km (10 miles) south of Boulder. The 881 Hillside Area is located to the south and southeast of the center of the plant and is separated from the southern and eastern plant boundaries by approximately 1.6 km (1 mile) of undeveloped Department of Energy (DOE)-owned buffer zone. Approximately 9,000 people live within an 8-km (5-mile) radius from the center of the plant, with most of these located to the south and east between 6.4 and 8 km (4 and 5 miles) away. The majority of the population beyond a 6.4-km (4-mile) radius receives its water from public utilities, while the smaller population (684 people) closer to RFP, 3.2 - 6.4 km (2-4 miles), is potentially supplied by domestic water wells.

Current off-site land use includes residential, commercial/industrial, limited agricultural, and recreational uses, and current on-site use is restricted to RFP personnel or visitors. According to the plans of Jefferson County and of a group of area landowners, Jefferson Center Associates, credible future uses of off-site land include 1) commercial/ industrial uses adjacent to RFP, and 2) residential and recreational uses further away. Due to commercial land development pressures and limited water supplies, it is improbable that future off-site use will include agricultural land use. As the land manager responsible for determining future onsite use, DOE must consider existing policies and potential liabilities. Future on-site use as an ecological reserve is credible and consistent with Atomic Energy Commission (AEC) and DOE policy and is allowed under DOE Order 4300.1B; commercial/industrial use in the areas currently developed for operations is also credible. Due to potential liabilities and the ecological reserve policy, it is improbable that future land uses will include agricultural or residential uses. However, at the request of EPA and the Colorado Department of Health (CDH), residential use will be quantitatively evaluated. The most likely time that the site would be available for alternative use is the year 2047, allowing 20 years for relocation of special nuclear materials (SNM) and SNM production and 35 years

for decontamination and decommissioning (D&D). Because it is possible the site could become available before 2047, the target date of the year 2020 set by Energy Secretary Admiral James D. Watkins for completion of Environmental Restoration (ER) is proposed by DOE to evaluate risks related to future potential use. However, at the request of EPA and CDH, the hypothetical future resident will be assumed to reside at OU1 under conditions that exist now, coexisting with the adjacent special nuclear materials and production facilities.

Future land uses that are credible or additional land uses that have been specifically requested by EPA and CDH will be used for quantitative exposure assessment, while those that are less likely will not be evaluated. The land use scenarios selected for quantitative exposure assessment are 1) current off-site residential, 2) current on-site commercial/industrial (requested by EPA and CDH), 3) future on-site residential (requested by EPA and CDH), 4) future on-site commercial/industrial, and 5) future on-site ecological reserve. For those scenarios that will be quantitatively assessed, complete exposure pathways and exposure parameters have been identified. Quantitative exposure assessment of these RME scenarios will be conducted as part of the PHE portion of the BRA.

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APPENDIX C – 881 HILLSIDE (OU1) WELL PRODUCTION TEST RESULTS

ACRONYMS

AEC	Atomic Energy Commission
BRA	Baseline Risk Assessment
CDH	Colorado Department of Health
D&D	decontamination and decommissioning
DOE	Department of Energy
DRCOG	Denver Regional Council of Governments
EE	Environmental Evaluation
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ER	environmental restoration
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PEIS	Programmatic Environmental Impact Statement
PHE	Public Health Evaluation
RAGS	Risk Assessment Guidance for Superfund
RFP	Rocky Flats Plant
RI	Remedial Investigation
RME	reasonable maximum exposure
SNM	special nuclear material
TLV	threshold limit value
TWA	time weighted average

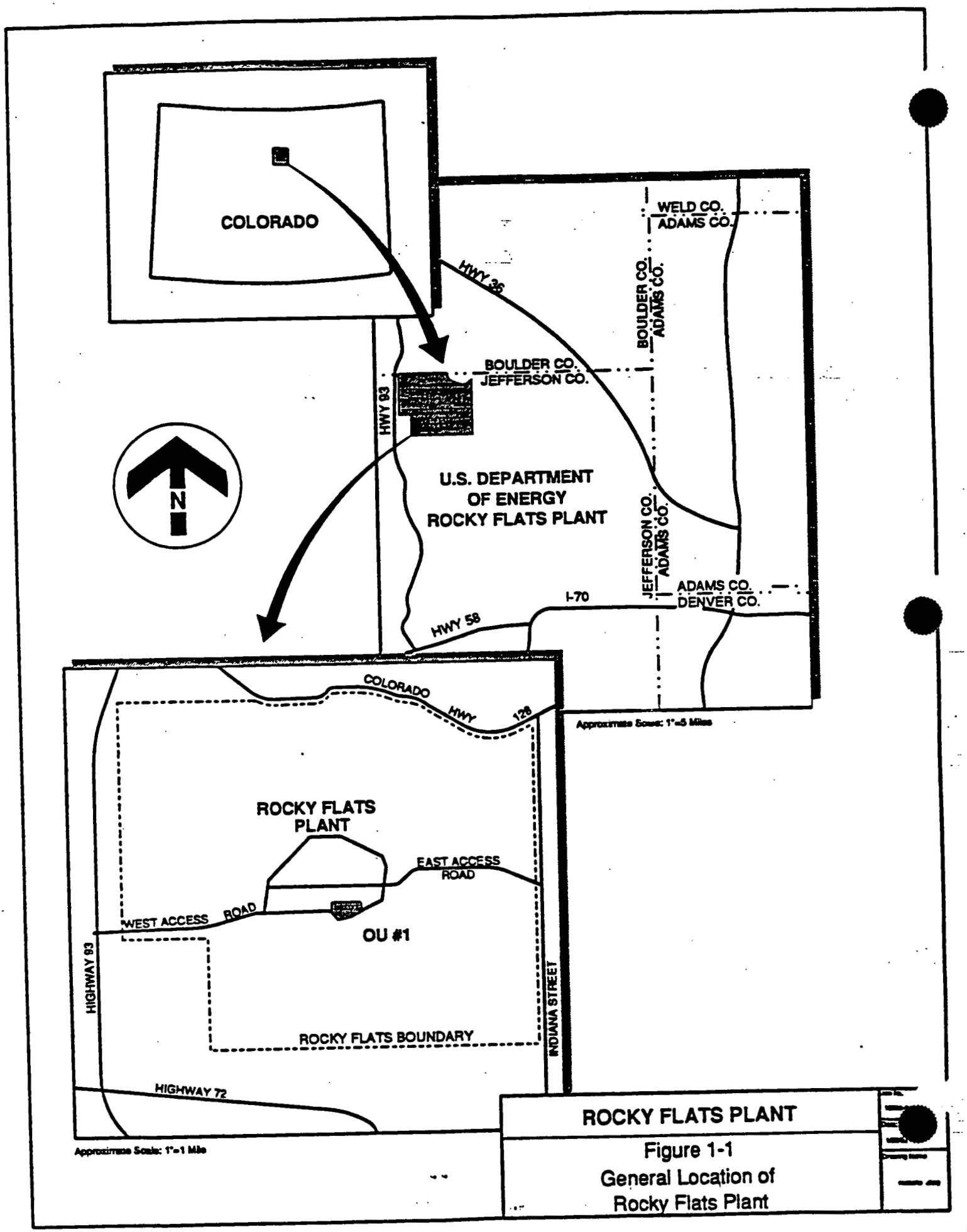
1.0 INTRODUCTION

1.1 Purpose

This Exposure Scenario Technical Memorandum is presented as part of the Public Health Evaluation (PHE) of the Baseline Risk Assessment (BRA) for the 881 Hillside Area Operable Unit #1 (OU1) located at the Rocky Flats Plant (RFP) (Figure 1-1). This technical memorandum outlines present and future reasonable land use scenarios along with applicable exposure parameters. The purpose of this technical memorandum is to describe "the present, potential, and reasonable use with a description of the assumptions made and the use of data" as specified in Attachment 2, Section VII.D of the Interagency Agreement (IAG 1991). Applicable exposure scenarios will be used to estimate intakes of contaminants by receptor populations during the Exposure Assessment phase of the PHE. This memorandum is being submitted prior to the required submittal of the BRA for OU1 as specified in Attachment 2, Section VII.D of the IAG.

1.2 Scope

The scope of this Technical Memorandum is limited to the identification of current and future land use and human exposure scenarios for OU1, including identifying exposure pathways and intake and exposure values. Potential scenarios are identified according to the Environmental Protection Agency (EPA) concept of reasonable maximum exposure (RME), defined as conservative, but within a realistic range of exposures, and are reasonably expected to occur at a site (EPA 1990b). The term "potential" is used to mean " a reasonable chance of occurrence within the context of the reasonable maximum exposure scenario" (EPA 1990a). Using this approach, the potential or likelihood of a scenario occurring is classified as improbable, plausible, or credible. In this document, "improbable" is used to indicate scenarios that are unlikely to occur. "Plausible" is used to indicate scenarios that are conceivable, though not expected, and "credible" is used to designate scenarios that are believable with reasonable grounds. Thus, in order of increasing credence,


COLORADO
WELD CO.
ADAMS CO.
HWY 36
BOULDER CO.
ADAMS CO.
BOULDER CO.
JEFFERSON CO.
HWY 93
N
U.S. DEPARTMENT
OF ENERGY
ROCKY FLATS PLANT
JEFFERSON CO.
ADAMS CO.
ADAMS CO.
DENVER CO.
I-70
HWY 58
COLORADO
HWY
128
Approximate Scale: 1"=5 Miles
ROCKY FLATS
PLANT
EAST ACCESS
ROAD
WEST ACCESS
ROAD
OU #1
HIGHWAY 93
INDIANA STREET
ROCKY FLATS BOUNDARY
HIGHWAY 72
Approximate Scale: 1"=1 Mile
ROCKY FLATS PLANT
Figure 1-1
General Location of
Rocky Flats Plant

the terms range from improbable (unlikely to occur) through plausible (conceivable, though not expected) to credible (believable with reasonable grounds).

In general, land uses that are likely to occur will be considered for quantitative exposure assessment, while those that are less likely are qualitatively discussed or dismissed from further consideration.

2.0 PHYSICAL ENVIRONMENT

The physical environment is described in the OU1 work plan (EG&G 1991b). The following is a summary of the information describing climate, geology, hydrology, and biota.

2.1 Climate

The area has a semi-arid climate and receives approximately 0.38 meters (15 inches) of precipitation annually. Approximately half of this moisture is received during the winter and spring as snowfall, approximately 30 percent falls during summer thunderstorms, and the remainder is received as light rain during the spring, summer, and fall. Annual free-water evaporation is approximately 1.1 meters (45 inches), substantially greater than the amount of annual precipitation.

The general annual wind pattern (Figure 2-1) for RFP indicates that winds flow from the northwest quadrant approximately 46 percent of the year. Outside of the northwest quadrant, the next largest wind rose component is due to wind from the west-southwest, which occurs approximately 7.2 percent of the year. The highest velocity winds (>15 meters per second [m/s]) (>34.5 miles per hour [mph]) are generally from the northwest. Topographical conditions specific to OU1 may cause local variations in wind direction; however, the annual averages are not expected to be significantly different from those for the entire RFP site. Based on the above information, the general area from the east-northeast to the south of RFP could be impacted by atmospheric dispersion from RFP.

2.2 Geology

The geologic units at OU1 include the Rocky Flats Alluvium, colluvium, valley-fill alluvium, terrace alluvium, and artificial fill that unconformably overlie the Arapahoe and Laramie Formations of the Cretaceous Age (EG&G 1991b, EG&G 1992). The Arapahoe Formation occurs only at the top of the slope of the hillside. The majority of OU1 is

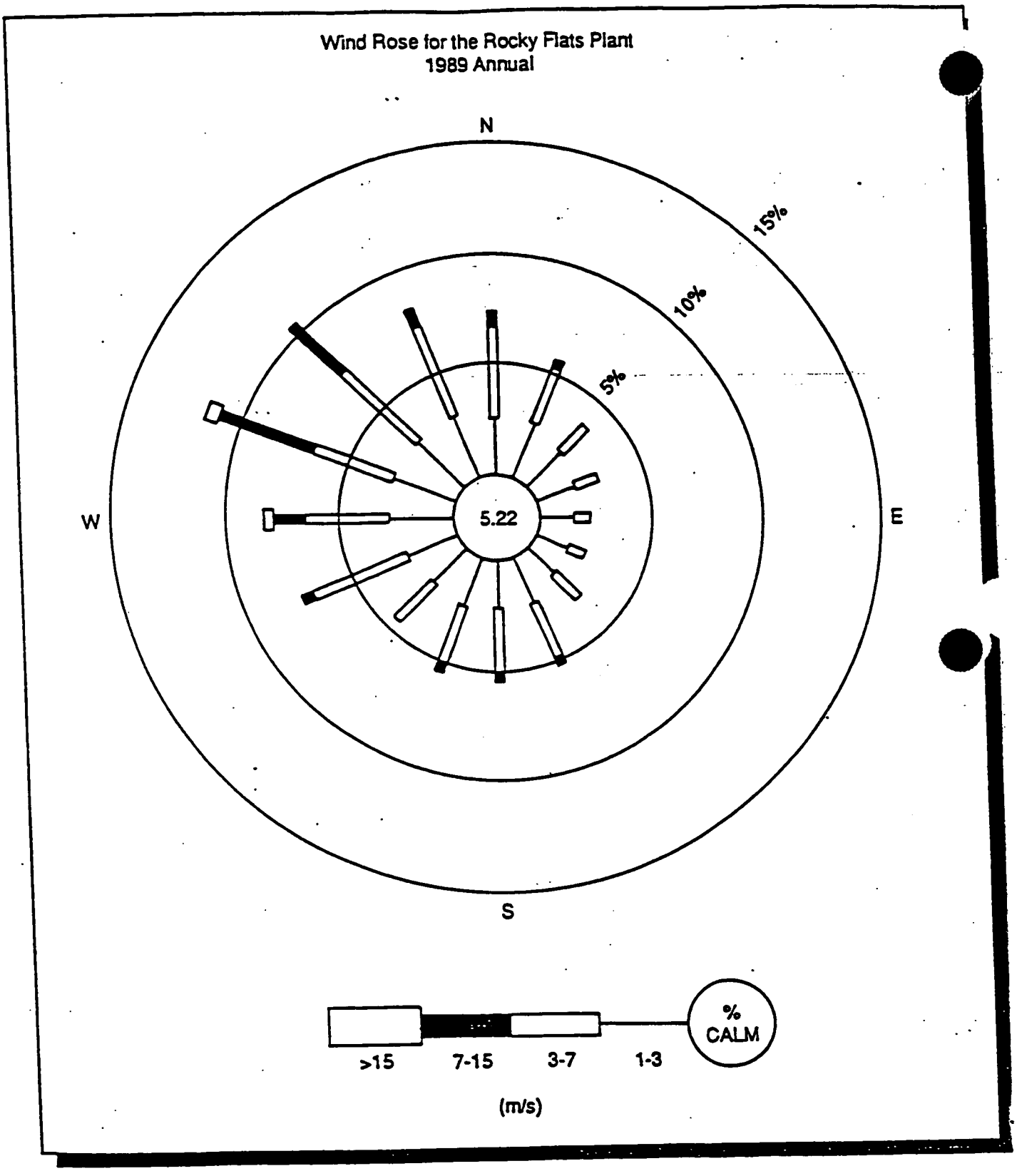

Wind Rose for the Rocky Flats Plant
1989 Annual
N
E
S
W
15%
10%
5%
5.22
%
CALM
>15
7-15
3-7
1-3
(m/s)

FIGURE 2-1

underlain by the Laramie Formation. There are also isolated exposures of bedrock at OU1. The 881 Hillside Area is south-facing and slopes towards Woman Creek, south of RFP and Building 881.

The Rocky Flats Alluvium, a series of coalescing alluvial fans deposited by braided streams (Hurr 1976), is the oldest alluvium at RFP and caps the top of the 881 Hillside. A four- to twenty-foot thick layer of colluvium and weathered bedrock mantles the slope of the Woman Creek drainage. The colluvium materials were deposited by slope wash and creep of the Rocky Flats Alluvium and weathered bedrock. The colluvium consists mainly of clay with common occurrences of sandy clay and gravel. Artificial fill and disturbed surficial materials are present around building 881 and extend down-slope to the south interceptor ditch. The colluvium is covered by fill at Individual Hazardous Substance Site (IHSS) 130, and surficial materials have been disturbed near IHSSs 119.1 and 119.2. Valley-fill alluvium, derived from reworked older alluvial deposits and bedrock, occurs along Woman Creek. The valley fill consists of poorly sorted cobbles, pebbles, and gravels in a silty sand matrix. Terrace alluvium, composed of very poorly sorted gravelly sand, is present along the north side of the Woman Creek valley fill alluvium (EG&G 1991b).

The surficial materials at OU1 are underlain by the Laramie Formation of Cretaceous age and consist of claystones with interbedded lenticular sandstones, siltstones, and occasional lignite deposits. The bedrock dips at approximately two degrees to the east under RFP (EG&G 1990). Sandstones were deposited in stream channels and in overbank splays. Claystones were deposited in the floodplain and in backswamp areas. A generalized stratigraphic column is available for review in Figure B-1 in Appendix B.

2.3 Hydrology

Shallow ground water occurs in surficial materials and in subcropping Laramie Formation sandstones at OU1. This ground water is unconfined and flows to the southeast from areas of higher elevation towards Woman Creek. Ground water may also exist in

deeper sandstone units in the Laramie Formation; however, the hydraulic connection of the shallow groundwater flow system to these deeper sandstone units is not fully understood (EG&G 1991b).

Recharge to the unconfined system occurs by infiltration of incident precipitation and by seepage from ditches, creeks, and retention ponds. The elevation of the water table fluctuates seasonally by several feet, with the highest levels occurring during the spring and early summer months of May and June when precipitation and runoff is large and evapotranspiration is small. Water levels generally decline and many wells in the unconfined flow system go dry during late summer and fall. Seeps commonly occur at the contact between the Rocky Flats Alluvium and outcropping claystone of the Arapahoe Formation at the top of the hillside. The French drain was designed to capture shallow ground water at OU1.

The surface water at the OU1 is ephemeral because of the seasonal response to spring runoff and storm events. Seeps and springs occur on the far eastern portion of OU1 during these events. A small drainage ditch near IHSS 102 also has intermittent flow into the south interceptor ditch (EG&G 1991a).

2.4 Biota

The 881 Hillside Area is part of a diverse and unique grassland community and hosts a riparian habitat in lower-lying areas. Flora representative of tall-grass prairies, short-grass prairies, and foothills regions can be found within the plant boundary. The more steeply sloped areas of the hillside are predominantly covered with grasses, while surface-water drainage areas such as Woman Creek are host to grasses, cattails, rushes, and cottonwood trees. As evidenced by the presence of disturbance-sensitive grasses like big bluestem and sideoats, restricted site access has facilitated vegetative recovery from common human activities along the Front Range such as burning, grazing, and road-building. In addition, restricted access provides protected nesting areas and habitats which help support animal populations in adjacent areas.

Animal life inhabiting RFP and its buffer zone consists of species associated with western prairie regions. Mule deer are the most common large mammals, with approximately 125 permanent residents. Smaller animals include carnivores, such as the coyote and red fox, omnivores, such as the striped skunk, and herbivores, such as rabbits, meadow voles, and gophers. Throughout the hillside area, birds such as western meadowlarks, mourning doves, and vesper sparrows are quite common, while birds of prey such as great horned owls, and ferruginous and American rough-legged hawks are observed less frequently. A variety of ducks, killdeer, and redwing blackbirds may be seen near the ponds along Woman Creek. Reptiles such as the western painted turtle and the western plains garter snake also inhabit the areas near the ponds, while bull snakes and rattlesnakes may be infrequently observed throughout the hillside area.

Impact to ecological receptors will be evaluated in the Environmental Evaluation (EE) portion of the BRA. EE and PHE are parallel activities in the evaluation of hazardous waste sites, and although different processes, they share certain information needs and will generally use some of the same data and similar future use scenarios. The scope of this document is limited to PHE and will discuss exposure scenarios from that perspective. The compatibility and likelihood of PHE and EE exposure scenarios will be considered by risk management during the development of remediation goals. In some cases, future land uses assessed as credible for PHE may have severe impact on ecological scenarios (e.g., future commercial development of the 881 Hillside Area could necessitate destruction of local ecological habitats).

3.0 POTENTIALLY EXPOSED POPULATIONS

Potentially exposed populations are characterized using information developed by the Denver Regional Council of Governments (DRCOG) in the demographics study *1989 Population, Economic, and Land Use Data for Rocky Flats Plant* (DOE 1990). Section 3.1 contains a summary of some relevant aspects of that document, including the presence of sensitive subgroups, current and projected activity patterns, and the location of each relative to the site. Information on current zoning and land use is available in the Jefferson County Northeast Land Use Inventory (JEFFCO 1989). Plans for future off-site land uses are indicated in the North Plains Community Plan (JEFFCO 1990) and the Jefferson Center Comprehensive Development Plan, which is Exhibit B of the Intergovernmental Agreement (IGA 1989). Future on-site land use is discussed in an Environmental Statement completed in 1972 when the land in the buffer zone was acquired by the Atomic Energy Commission (AEC) (AEC 1972). Further information on future plans for RFP is given in the Nuclear Weapons Complex Reconfiguration Study (DOE 1991a), the RFP Sitewide Environmental Impact Statement (EIS) (in production), and the Environmental Restoration and Waste Management Five-Year Plan (DOE 1991c).

3.1 Location

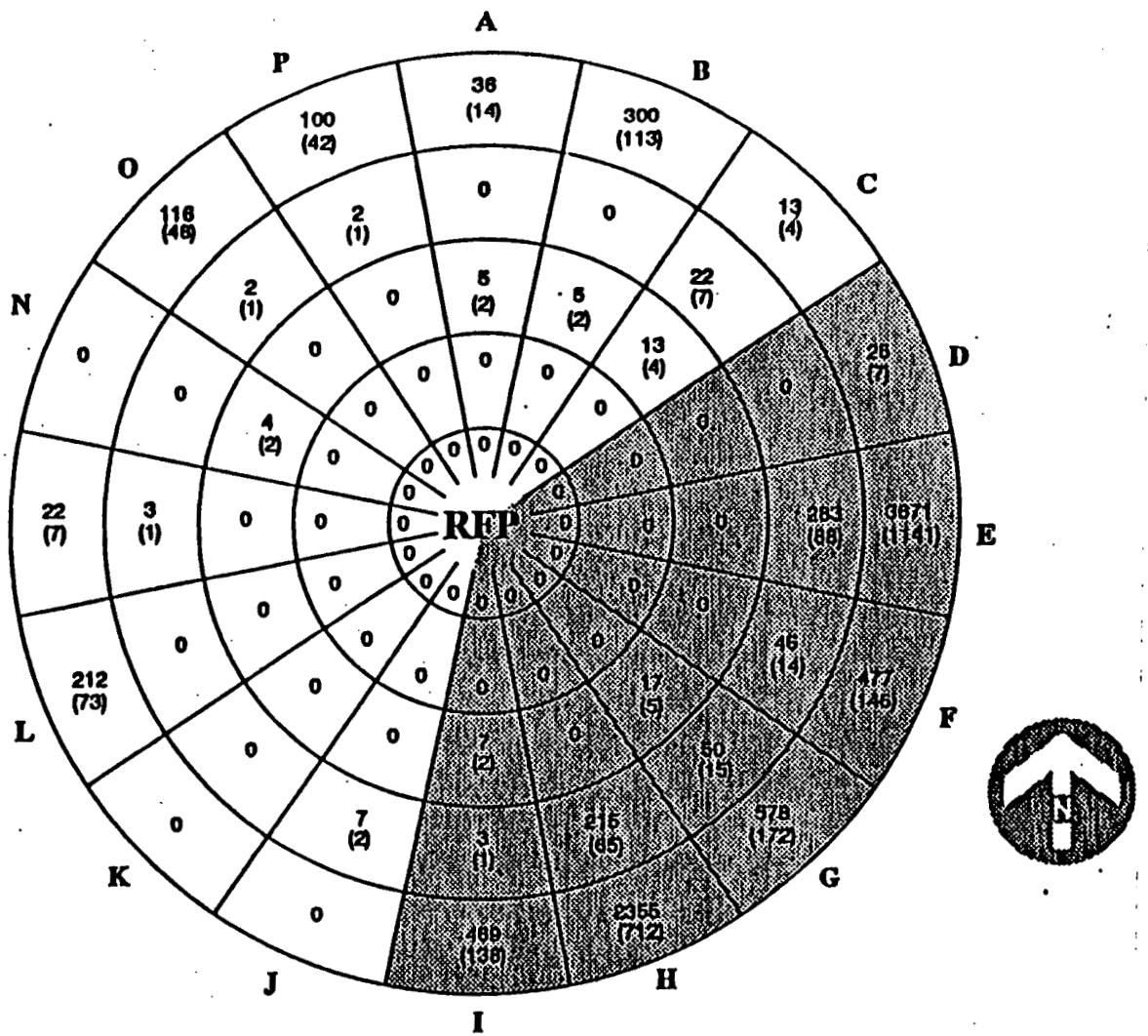
RFP is located approximately 26 km (16 miles) northwest of Denver and approximately 16 km (10 miles) south of Boulder. The site is located on a high arid plain at about 1,800 m (6,000 feet) above sea level. The area west of RFP is primarily mountainous, sparsely populated and government-owned (e.g., National Forest), while the area east of RFP is primarily a high arid plain, densely populated, and privately owned. Most of the development of the plains to the east of RFP has occurred since the plant was built, and according to projections by DRCOG, future development is expected to continue to the year 2010.

As illustrated by Figure 3-1 (DOE 1990), there is minimal residential and commercial development within a 6.4-km (4-mile) radius from the center of RFP. Between 6.4 and 16 km (4 and 10 miles) from the center of RFP, development gradually increases to the extent that approximately 316,000 people live within the 16-km (10-mile radius). Beyond the 16-km (10-mile radius), the Denver area lies to the southeast. Presently, the most significant development within the 16-km (10-mile) radius has occurred towards the east-southeast in the cities of Westminster, Arvada, and Wheat Ridge. Additional significant development within 16 km (10 miles) includes the cities of Boulder, Louisville, Lafayette, Broomfield, and Golden.

Sensitive subpopulation facilities (e.g., schools, nursing homes, and hospitals) are located beyond the 8-km (5-mile) radius shown in Figure 3-1. Ninety-three schools, eight nursing homes, and six hospitals are located within the 8- to 16-km (5- to 10-mile) radius of RFP. Over half of the schools are located in the southeast quadrant in the cities of Westminster, Arvada, and Wheat Ridge. Boulder, Arvada, and Wheat Ridge each contain one or more nursing homes. The six hospitals contain a total of approximately 900 beds and are located in the cities of Boulder, Louisville, Wheat Ridge, and Westminster.

The expected trend in population growth in the vicinity of RFP has been projected by DRCOG and is summarized in a recent Department of Energy (DOE) demographics study (DOE 1990). This report considers expected variations in population density by comparing the current (1989) setting to population projections for the year 2010. A 21-year profile of projected population growth in the vicinity of RFP can thus be examined.

Expected population density and distribution around RFP for the year 2010 is shown in Figure 3-2. Table 3-1 summarizes the population data presented in Figures 3-1 and 3-2. Sectors 3, 4, and 5 depicted in these figures are relevant to off-site exposure scenarios, while Sectors 1 and 2 represent property within RFP boundaries. In addition, only radial segments D through I are likely to be relevant to the 881 Hillside Area based on distance and pathway direction. These segments represent the predominant down-wind and downstream



KILOMETERS	(MILES)	SECTOR NUMBER
0-1.6	0-1	SECTOR 1
1.6-3.2	1-2	SECTOR 2
3.2-4.8	2-3	SECTOR 3
4.8-6.4	3-4	SECTOR 4
6.4-8.0	4-5	SECTOR 5

LEGEND

SHADED AREAS INDICATE REGIONS IN THE PREDOMINANT DOWNWIND DIRECTIONS FROM THE ROCKY FLATS PLANT (RFP).

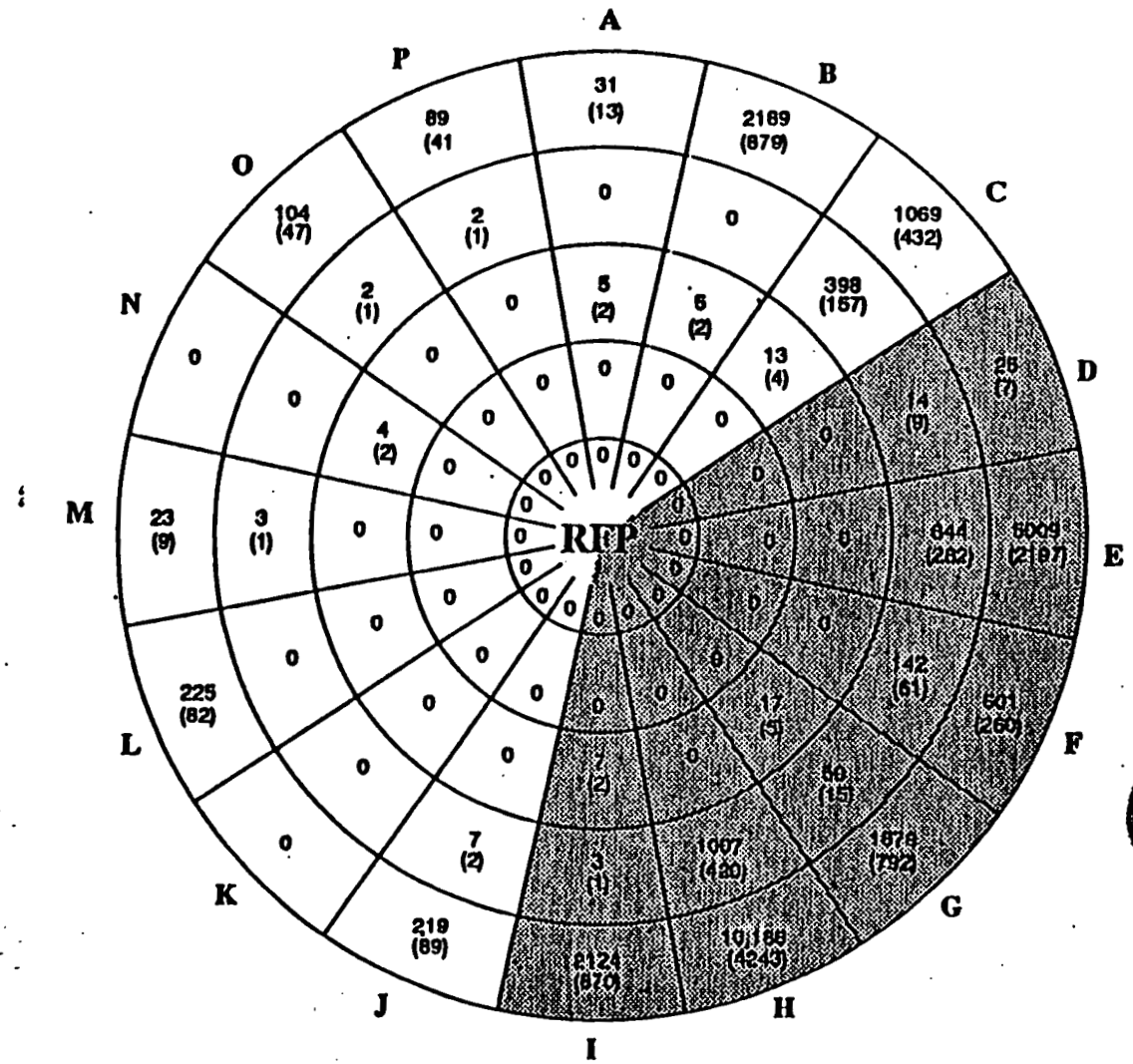
NOTE:

THERE ARE NO SENSITIVE SUBPOPULATION FACILITIES LOCATED WITHIN THIS 8-KILOMETER (5-MILE) RADIUS.

SOURCE:

DOE, "1989 POPULATION ECONOMIC AND LAND USE DATA BASE FOR ROCKY FLATS PLANT" (DOE, 1990).

FIGURE 3-1
1989 POPULATIONS AND (HOUSEHOLDS), SECTORS 1-5



KILOMETERS	(MILES)	SECTOR NUMBER
0-1.6	0-1	SECTOR 1
1.6-3.2	1-2	SECTOR 2
3.2-4.8	2-3	SECTOR 3
4.8-6.4	3-4	SECTOR 4
6.4-8.0	4-5	SECTOR 5

LEGEND

SHADED AREAS INDICATE REGIONS IN THE PREDOMINANT DOWNWIND DIRECTIONS FROM THE ROCKY FLATS PLANT (RFP).

NOTE:

THERE ARE NO SENSITIVE SUBPOPULATION FACILITIES LOCATED WITHIN THIS 8-KILOMETER (5-MILE) RADIUS.

SOURCE:

DOE, "1989 POPULATION ECONOMIC AND LAND USE DATA BASE FOR ROCKY FLATS PLANT" (DOE, 1990).

FIGURE 3-2
2010 POPULATIONS AND (HOUSEHOLDS), SECTORS 1-5

areas that are located closest to RFP. Review of Table 3.1 and Figures 3-1 and 3-2 suggests the following relative to future populations:

- Sector 3, the 3.2- to 4.8-km (2- to 3-mile) band from the center of RFP, contains the nearest resident (approximately 1.2 km [3/4 of a mile] east-southeast from the point where Woman Creek crosses under Indiana Avenue). There is no projected population growth in this sector over the next 20 years. Currently, a total of 24 residents reportedly live in Sector 3, Segments D, E, F, G, H, and I.

TABLE 3-1
CURRENT AND PROJECTED POPULATION IN THE VICINITY OF THE ROCKY FLATS PLANT

Sector	D	E	F	G	H	I	Sum
Year: 1989							
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	17	0	7	24
4	0	283	46	50	215	3	597
5	25	3,671	477	578	2,355	469	7,575
SUM	25	3,954	523	645	2,570	479	8,196
Year: 2010							
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	17	0	7	24
4	0	644	142	50	1,007	3	1,846
5	25	5,009	601	1,879	10,186	2,124	19,824
SUM	25	5,653	743	1,946	11,193	2,134	21,694

Source: DOE (1990)

- Population growth in Sectors 4 and 5, 4.8 to 8 km (3 to 5 miles) from the center of RFP is expected to be substantial through the year 2010. Most of this projected increase is anticipated in northern and southern areas. Within Segments D, E, F, G, H, and I, the population is expected to increase from 8,172 to 21,670.

These observations suggest that, while the population in the vicinity of RFP is expected to grow in the next 20 years, the dynamics of growth will not substantially encroach on the areas where contaminants from the 881 Hillside would likely impact (Sectors 2E, F, G, 3E, F, G).

3.2 Current Off-site Land Use

In addition to the location of populations discussed in Section 3.1, information on present zoning and land uses around RFP is available in the Jefferson County Northeast Land Use Inventory (JEFFCO 1989). The results are summarized in the Jefferson County Land Use Inventory map (Figure 3-3). Considering this information, current off-site land use includes each of the land use categories identified by the Environmental Protection Agency (EPA 1991):

- Residential
- Commercial/Industrial
- Recreational
- Agricultural

NOTICE

This document (or documents) is oversized for 16mm microfilming, but is available in its entirety on the 35mm fiche card referenced below:

Document # 000654

Titled: Jefferson County Land Use Inventory (3-3)

Fiche location: A-OU01-M3

Water is a limited resource in this semi-arid climate, and as such, the economic availability influences land use decisions. Water supply for the off-site area originates from two primary sources, public utilities and private wells. The residential developments apparent on the Jefferson County Land Use Inventory map (Figure 3-3) are served by municipal water systems from the cities of Westminster and Arvada. Between the RFP boundary and the residential developments, private wells are assumed to provide water for domestic use (Appendix B). To the southeast of RFP, near Woman Creek, there are 14 wells permitted for domestic use. Actual sustained well-yields (gallons per minute) are difficult to obtain, but personnel in the Colorado State Engineers Office indicate that while a well generally provides sufficient yield for a residence, the yield is usually insufficient to supply an agricultural irrigation system. In the future, it is expected that public water supply systems will continue to be expanded to accommodate development, thereby eliminating the need for private wells.

Because residents are more likely to spend the greatest amount of time at or near home, the residential land use category will be the most conservative for exposure assessment purposes. Commercial/industrial populations would not be expected to spend as much time per day in a potential exposure area or have the same extent of direct contact with soils, sediments, and surface water as residential receptors. Since the evaluation of the potential risk to a residential receptor is expected to bound the potential risk to a commercial/industrial receptor, the off-site commercial/industrial scenario will not be considered further, while the off-site residential scenario is evaluated further in Section 4.

To illustrate the relative magnitude of the potential risks for residential and recreational receptors, information available from previous calculations at another RFP OU is used. Off-site risks have been evaluated in a preliminary manner for OU 3. Two separate documents, the *Past Remedy Report, Operable Unit No. 3 — IHSS 199* (DOE 1991e) and the *Historical Information Summary and Preliminary Health Risk Assessment, Operable Unit No. 3* (DOE 1991f), were submitted to EPA and approved. In both documents, potential

risks to an off-site recreational receptor are evaluated using assumptions that yield a reasonable maximum risk estimate.

The Past Remedy Report calculated potential risks to recreational and residential land-use scenarios due to inhalation and ingestion of ^{239}Pu in soils. For soil concentrations of 1, 10, and 100 pCi/gm, the total incremental cancer risks associated with the recreational use exposure scenario were estimated as 7.0E-08, 7.0E-07, and 7.0E-06, respectively. Using a 10 pCi/gm soil concentration, comparison of the estimated total incremental cancer risk for the residential scenario (2.2E-06), with that for the recreational scenario (7.0E-07), indicates that the risk to a recreational receptor is expected to be less than the risk to a resident. Another relevant point of interest in that study is that for the recreational use scenario, the estimated risk due to ingestion of soil was calculated to be one order of magnitude less than that due to inhalation of dust.

Similar to the Past Remedy Report, the Historical Information Summary and Preliminary Health Risk Assessment estimated potential risk to a recreational receptor for hypothetical concentrations of ^{239}Pu in sediments. For a 10 pCi/gm sediment concentration, the total risk was calculated to be 4.6E-07. Furthermore, inhalation of resuspended exposed sediments was found to contribute 98 percent of the risk, while ingestion of surface water and sediments constitutes the other 2 percent.

The preliminary risk calculations in these two documents support two important conclusions. For a given sediment concentration, the potential risk to a hypothetical resident exceeds the potential risk to a recreational receptor. Also, for the recreational receptor, the inhalation pathway dominates the risk. Thus, assessment of the risk to the hypothetical resident bounds the risk to the recreational receptor, and risk management practices established to protect the resident will also adequately protect the recreational receptor. Because these conclusions are driven by assumed exposure times and uptake factors, rather than site-specific concentration or dispersion data, the same relative risk relationships should

be applicable for OU1. Consequently, the current off-site recreational scenario will not be further considered.

Based on reconnaissance conducted within approximately a 6.4-km (4-mile) radius of RFP and on information in the Jefferson County Land Use Inventory map, there is little agricultural use of land in the area in the form of farming or raising of livestock for human consumption (a small herd was observed approximately 6.4 km [4 miles] south of RFP). Predominant downgradient (with respect to water flow and predominant wind direction) use is presently single-family dwellings and horse boarding operations. The prevalent use of downgradient land for boarding horses has resulted in overgrazing, thereby making the land less suitable for other types of agricultural use. Thus, although this land is zoned for agricultural use, the actual observed uses resemble a residential scenario more than a farm family scenario (EPA 1991). The current use of off-site land for this type of limited agricultural activity is discussed further in Section 4.

3.3 Current On-site Land Use

The area encompassing OU1 is essentially devoid of Rocky Flats production and maintenance activities. A large portion of the OU is actually located outside the security fence and technically within the buffer zone. As a result, under the no action conditions of the BRA, Rocky Flats workers are not expected to be within OU1. However, the area is subject to routine security surveillance as part of the overall RFP security program. Security surveillance includes periodic vehicular drives through the area on established roadways. The opportunity for significant inhalation exposure during these surveillance tours is very small, as indicated by a conservative screening assessment. A screening assessment involves preliminary calculations to estimate the magnitude of an exposure or risk, which can then be used to determine the relative importance of exposure pathways or scenarios. The results of the screening assessment presented in Appendix A are summarized in Tables 3-2 and 3-3.

TABLE 3-2
ESTIMATED ANNUAL EFFECTIVE DOSES FOR A SECURITY SPECIALIST

Radionuclide	Mean Soil Concentration (pCi/g)	Estimated Effective Annual Dose (mrem/yr)	Annual Dose Limit (mrem/yr)
U-234 + 235	9	0.19	5,000
U-238	287	5.3	5,000
Pu-239	0.1	0.1	5,000
Total Dose		5.6	5,000

TABLE 3-3
ESTIMATED TIME WEIGHTED AVERAGE (TWA) CONCENTRATIONS FOR A SECURITY SPECIALIST

Metal	Mean Soil Concentration (mg/g)	TWA Air Concentration (mg/m^3)	Threshold Limit Value (TLV) (mg/m^3)
Cadmium	0.003	2E-7	0.05
Chromium III	0.012	8E-7	0.5
Beryllium	0.0009	6E-7	0.002

The conservatively estimated summed annual effective dose equivalent of 5.6 mrem/year is insignificant relative to background (300 mrem/year) (NCRP 1987) or relative to the annual effective dose equivalent limit of 5000 mrem/year. Similarly, the estimated time-weighted average (TWA) concentrations are each several orders of magnitude below the threshold limit values (TLV) (ACGIH 1991-1992). This screening assessment indicates that intermittent exposure to hazardous substances identified at the site are well within acceptable guidelines for security personnel performing routine surveillance functions in OU1.

Security personnel at RFP are required to participate in medical monitoring programs designed to clinically screen for potential trace amounts of radionuclides and hazardous substances. Components of the monitoring programs include: (1) baseline, annual, and exit

physical examinations, (2) bioassay programs to detect potential intake of radionuclides and hazardous substances, and (3) additional diagnostic procedures such as lung function tests to identify potential impacts of exposure to environmental contaminants. These monitoring programs are designed in accordance with DOE Orders, Occupational Health and Safety Administration (OSHA) requirements, and good occupational health practice.

In addition to the presence of those involved with the operation and support of RFP, possible exposure of the public while on-site must be considered. Because site access is restricted, any members of the public at the 881 Hillside Area must be either 1) members of an RFP-organized tour or function, or 2) unauthorized intruders. Compared to the screening assessment regarding routine surveillance tours through the 881 Hillside Area, members of a public tour would only be exposed once or twice a year, resulting in a substantially lower risk than the low risk to the security specialist. Intruders could be children at play, adults as hunters, hikers, or activists. Present levels of security include secure fencing, frequent armed security patrols, and modern electronic security systems. Fencing is posted to warn intruders that they are trespassing on federal property and, if caught, will be arrested. Plant security reports that there have been no incidents of trespassing in the buffer zone in the past seven years.

Therefore, based on the discussion above, the security specialist provides the bounding current on-site land use scenario. Although the screening assessment indicates that intermittent exposure to hazardous substances identified at the site are well within occupational guidelines, EPA and CDH have requested quantitative risk assessment for the current on-site commercial/industrial scenario be included in the PHE.

3.4 Future Off-site Land Use

Future off-site land uses are illustrated in the North Plains Community Plan Study Area Map (Figure 3-4) and the map of the Jefferson Center Comprehensive Development Plan (Figure 3-5). Jefferson County and five area cities (Arvada, Broomfield, Golden,

Superior, and Westminster) have conducted a review of present land uses in the area and participated in a cooperative planning process. Results are summarized results presented in the North Plains Community Plan Study Area Map (Figure 3-4). Similar to the North Plains Community Plan Study Area Map, the map of the Jefferson Center Comprehensive Development Plan represents the plans of Jefferson Center Associates, a group of area landowners, to develop areas outside the protected area of RFP.

As illustrated by the maps, areas closest to RFP are planned for industrial or office space, while residential development is planned for areas further from RFP. Coupled with the historical pattern of growth and DRCOG projections of continued future growth, it is likely that demands on finite resources such as water and land will result in increasing costs for these commodities. At some point in the foreseeable future, these increasing costs, combined with past overgrazing practices at horse boarding operations, will render agricultural use of the land impractical. Based on this information, future off-site land uses and their likelihood of occurrence include:

- Residential (credible)
- Commercial/Industrial (credible)
- Recreational (plausible)
- Ecological Reserve (improbable)
- Agricultural (improbable)

Of the credible or plausible land uses, residential use is expected to involve greater exposure duration and frequency than commercial/industrial or recreational uses. Thus, evaluation of the potential risk to a residential receptor is expected to bound the risk to commercial/industrial or recreational receptors. Between the two risk assessment scenarios bounded by residential use potential risk, recreational use is likely to involve less exposure than commercial/industrial use due to shorter exposure duration and less exposure frequency. A commercial/industrial worker may be potentially exposed throughout the work-year, while

a recreational user exposure is typically limited to a fraction of the day and seasonally to 6 to 9 months.

Since future on-site scenarios involve exposures significantly closer to the contaminant sources, they are expected to provide the greatest potential exposure and to bound the off-site scenarios. Consequently, future off-site scenarios will not be further evaluated.

3.5 Future On-site Land Use

Future plans for RFP are discussed in the Nuclear Weapons Complex Reconfiguration Study (DOE 1991a). This is a nationwide study investigating options to reconfigure the aging weapons complex to meet today's needs. Of the two preferred reconfiguration options discussed in the study, both dictate relocation of RFP functions. A final decision on reconfiguration is not likely until a Programmatic Environmental Impact Statement (PEIS) is developed to analyze the consequences of alternative configurations for the weapons complex. As of this writing, the PEIS is scheduled for completion in August, 1993.

While the PEIS addresses the consequences of reconfiguration alternatives on the entire weapons complex, the RFP Site-Wide EIS focuses on the consequences of future alternatives specific to RFP. The alternatives are considered within five- and ten-year time frames, corresponding closely to the period prior to implementation of the Reconfiguration decisions. Depending on decisions made by Energy Secretary Admiral James D. Watkins, these alternatives may be subject to change. Currently, there are four alternatives being considered in the draft implementation plan, including the no action alternative:

- The no action alternative includes completing nuclear production upgrades, maintaining production standby, and complying with IAG environmental restoration (ER) commitments.

- Alternative 1 includes nuclear production activities at reduced levels, complying with IAG ER commitments, and placing surplus facilities into safe storage.

- Alternative 2 includes nuclear production at up to 1989 levels, increased non-nuclear production, completion of ER by 2020, and placing surplus facilities into safe storage.

- Alternative 3 includes transition to no production of nuclear or non-nuclear components, completion of ER by 2020, decontamination and decommissioning (D&D) of selected facilities, and placing other facilities into safe storage for deferred D&D.

Examination of these alternatives indicates ER of the buffer zone may be completed by 2020, but there is no specific time frame for discontinuing production or D&D. It is possible that ER of the 881 Hillside area could be completed before Reconfiguration is complete. However, as long as special nuclear materials (SNM), e.g. ^{239}Pu, are present at RFP, it is improbable that the buffer zone would be released for alternative use. Only after completion of ER, removal of SNM, and D&D of the facilities, does alternative use of the buffer zone become plausible.

For relocation of RFP, the entire process of site evaluation and selection, development of new process technologies, detailed design of facilities, staging of construction projects for affordability, parallel operation for certification, and final production transition will probably require up to 20 years (DOE 1991a). It is important to note that reconfiguration plans are not tied to definite time deadlines; instead they will be addressed as funds are appropriated by Congress. Thus, considering the potential large size of the appropriations necessary for Reconfiguration, the 20-year timeframe for relocating RFP operations is a minimum.

DOE weapons production sites have been in existence for 50 years or less and have only been considered for D&D in the past decade. Consequently, there are no historical precedents of unrestricted release of a site contaminated with transuranic waste material. Selection of a date for alternative use of the 881 Hillside Area is a function of the following factors:

- The time required for ER
- The time required for relocation of nuclear production
- The time required for D&D

Environmental restoration plans are discussed in detail in the Environmental Restoration and Waste Management Five-Year Plan (DOE 1991c). In this document, Energy Secretary Admiral James D. Watkins reaffirms that he is committed to the 30-year cleanup goal for all DOE sites. As discussed above, relocation of nuclear production is likely to take more than 20 years after plans are finalized. The time necessary to remove SNM and complete D&D activities is uncertain, but considering the size and number of facilities involved, a minimum of 35 years is reasonable. Thus, the best estimate of a date for alternative use of the 881 Hillside Area is 20 + 35 = 55 years, or the year 2047. However, for purposes of the BRA, Energy Secretary Admiral James D. Watkins' ER cleanup goal of the year 2020 will be considered the earliest date that the 881 Hillside Area would be available for alternative use.

Preservation of the undeveloped land surrounding the production area, including the 881 Hillside Area and the buffer zone, was discussed when much of this land was acquired in two increments from private owners by the AEC in the early seventies. With residential and commercial development expanding towards the plant, the land acquisition was, in part, "aimed at preserving a substantial band of that unoccupied land in an open, undeveloped state... [as] an open space or 'green belt' ..... [to] encourage increased growth of vegetation, and provide shelter for animal life" (AEC 1972). Because the land was not ceded by local government, DOE is the land manager and is responsible for determining and

providing for future land use of the site. Such future use decisions must balance the public's needs and desires with potential risk liabilities. The original DOE policy of preserving the buffer zone environment is still valid and may be expanded to include the entire RFP site. As indicated in a DOE memorandum concerning a draft paragraph to be included in the RFP Site-specific Plan, it is consistent with DOE's policy to secure the future land use of the RFP for an ecological preserve (DOE 1991b). Furthermore, such use is allowed by DOE Order 4300.1B, Chapter VIII, Section (4), which states, "Suitable DOE-owned or -leased land may be designated as a national environmental research park. Property holdings will be reviewed periodically and may be set aside for the exclusive use of nonmanipulative environmental research for definite or indefinite periods of time" (DOE 1987).

Consistent with the present uses of open space land in the region (hiking and nature trails), it is plausible that the entire site may be used for low-impact recreation. This use is similar to the ecological reserve in that both involve keeping the 881 Hillside Area undeveloped. An open space area and an ecological preserve would also involve some form of walking, either a day-hiker in the open space area or a research biologist walking during field activities. However, because a research biologist is likely to spend much more time at the site than a day-hiker and to be in close contact with soils and sediments during specimen observation and collection, the potential for exposure to a research biologist is greater than that of a day-hiker. Therefore, evaluation of potential exposure to a research biologist is judged to bound the potential exposure to a day-hiker.

Although written DOE policy does not indicate future use of the RFP site for commercial/industrial development, as recently as June 12, 1992, Admiral James D. Watkins, Secretary of Energy, introduced his plan to develop the RFP site as an industrial park. In this event, potential exposures to a commercial/industrial worker are expected to be less than those considered for a research biologist. This is due to the greatly reduced potential to be in close contact for long duration with soils, resuspended dust, surface water, and sediments. A research biologist is likely to conduct field research for one or two full days each week and spend the remainder of the week at an office or lab located away from the 881 Hillside Area. Field

work may involve kneeling or lying on bare ground or vegetation, and soiling the hands and arms with soil, sediments, or surface water during specimen collection. By contrast, a commercial/industrial worker is likely to be indoors most of the time, and when outdoors, is likely to be surrounded by landscaped lawns, sidewalks, and paved parking areas that decrease the opportunity for resuspending particulates and direct contact with soil.

The sources and economic availability of an adequate water supply must be examined in light of the potential influence on future land uses and potential risks. Presently, water at RFP is supplied by the Denver Water Board, with existing facilities capable of handling two million gallons per day. With distribution facilities already in place, it is likely that future land uses would utilize this system. Since off-site wells presently exist that are capable of limited water production, OU1 area well production characteristics were evaluated and the details are provided in Appendices B and C.

As presented in Appendix B, on-site wells would not produce adequate yield to support a family of four unless drilled to deeper confined water-bearing units, such as the Laramie/Fox Hills Aquifer. This is evident when considering monitoring wells completed in the Arapahoe and Laramie Formations at the RFP. Several of these wells are routinely bailed dry during normal sampling activities and may require several days to recover. This exemplifies the slow recharge rates for these units. The slow recharge rates can be attributed to both small hydraulic conductivity and recharge available at the RFP. Conversely, off-site wells are believed (discussed in more detail in Appendix B) to be screened in the basal conglomeratatic sandstone of the Arapahoe Formation and have a potentially large source of recharge from Standley Lake and nearby ditches and canals feeding Standley Lake or conveying water through the area (Appendix B).

In addition, a pump test analysis was conducted at OU1. The results, presented in Appendix C, indicate that the upper and shallow lower hydrostratigraphic units at the 881 Hillside are not reliable sources of ground water for normal domestic purposes. Without an economical source of ground water, it is very likely that the existing treated water supply system would continue to be used.

Considering the discussion above along with growth pressures of planned off-site development illustrated in the North Plains Community Plan Study Area Map and Jefferson Center Comprehensive Development Plan maps, the likelihood of uses of the land surrounding the production area is evaluated as:

- Ecological Reserve (credible)
- Commercial/Industrial (credible)
- Recreational (plausible)
- Residential (improbable)
- Agricultural (improbable)

Exposure potential for the credible land uses, ecological reserve, and commercial/industrial are considered further in Section 4. At the request of EPA and CDH, the potential risk for a future on-site residential scenario will also be considered further. The potential risk for recreational land use is plausible for the area, however low-impact hiking is bounded by the potential risk for the ecological reserve scenario, and will not be further evaluated. The last type of land use listed, agricultural, is unlikely to be present in the future due to the development pressures discussed in Section 3.4; therefore, future on-site agricultural land use will not be further evaluated.

4.0 LAND USE SCENARIOS

An exposure scenario is defined by exposure pathways from the source to a human receptor, along with assumptions on the frequency and duration of exposure. The exposure scenarios developed in this Technical Memorandum are based on RME. EPA defines "reasonable maximum" such that only potential exposures likely to occur will be included in the assessment of exposures (EPA 1990b). EPA further states that "in general, the baseline risk assessment will look at a future land use that is both reasonable, from land use development patterns, and may be associated with the highest (most significant) risk, in order to be protective" (EPA 1990a). To assess whether a scenario is reasonable or likely to occur, historical precedents, and site and community planning documents must be considered. Based on the concept of RME, the scenarios identified are classified as improbable, plausible, or credible events as defined in Section 1.2. To summarize in order of increasing credence, the terms range from improbable (unlikely to occur) through plausible (conceivable, though not expected) to credible (believable with reasonable grounds).

The present pattern of land use and information concerning likely future land uses (reconfiguration plans, environmental remediation plans, policy to use the site as an ecological preserve, and development plans for off-site land) are discussed in Section 3. Table 4-1 provides a summary analysis of current and future land uses.

TABLE 4-1
ANALYSIS OF CURRENT AND FUTURE LAND USE

Land Use Classification or Category	Current		Future	
	Off-site[1]	On-site[2]	Off-site[3]	On-site[4]
Residential	Yes	No	Credible[5]	Improbable
Commercial/Industrial	Yes	Yes	Credible	Credible
Recreational	Yes	No	Credible	Plausible
Ecological Reserve	No	No	Improbable[6]	Credible
Agricultural	Yes	No	Plausible[7]	Improbable

(1) Current off-site land uses are discussed in Section 3.2.

(2) Current on-site land uses are discussed in Section 3.3.

(3) Plans for future off-site land uses are discussed in Section 3.4.

(4) Plans for future on-site land uses are discussed in Section 3.5.

(5) "Credible" is used in this document to indicate scenarios offering reasonable grounds to be believed.

(6) "Improbable" is used in this document to indicate scenarios that are unlikely to occur.

(7) "Plausible" is used in this document to indicate scenarios that are conceivable, though not expected.

Exposure scenarios that have a higher degree of likelihood are candidates for quantitative assessment in the BRA, while scenarios that appear improbable in light of existing information are generally not candidates for quantitative assessment. In the case of projected future land uses, more than one alternative may be credible. In some cases, significant differences in exposure duration and contact rates makes it unnecessary to evaluate each alternative, because the scenarios with less potential exposure are bounded by those with greater potential exposure. Quantitative assessment of the scenario with greater potential exposure will yield sufficient information for PHE. Methods of evaluation or assessment for each scenario are presented in Table 4-2.

TABLE 4-2
METHOD OF EVALUATION OR ASSESSMENT

Land Use Classification or Category	Current		Future	
	Off-site	On-site	Off-site	On-site
Residential	Quantitative	None	None	Quantitative[1]
Commercial/Industrial	None[2]	Quantitative[3]	None	Quantitative
Recreational	None[2]	None	None	None[4]
Ecological Reserve	None	None	None	Quantitative
Agricultural	None[5]	None	None[6]	None

(1) Although future on-site residential use is improbable, requests of EPA and CDH will be followed and risks to hypothetical future on-site residential receptors will be quantitatively assessed.

(2) Examination of exposure duration and contact rates indicates that the potential increased cancer risk to an off-site recreational receptor or commercial/industrial receptor will be less than potential risks to an off-site resident. Quantitative assessment of the risk to an off-site resident is judged to bound these other scenarios.

(3) Quantitative analysis requested by EPA and CDH.

(4) Examination of exposure duration and contact rates indicates that the potential risk to a research biologist will be greater than the potential risk to a recreational receptor. Quantitative assessment of the risk to a research biologist will bound the recreational scenario.

(5) Observed downgradient current off-site agricultural use consists of horse boarding operations and is expected to have approximately the same potential risk as current off-site residential land use.

(6) Growth pressures of Front Range development coupled with finite supply and increasing costs of land and water indicate that future agricultural land use is not expected.

4.1 Scenarios Selected for Quantitative Evaluation

4.1.1 Current Off-site Residential Scenario

Information presented in Section 3 shows that there is current residential off-site land use, and this is projected by DRCOG to continue to the year 2010. Consequently, potential exposure and risk will be quantitatively assessed in the PHE. Both adult and child (0-6 yrs) receptors will be considered. The following exposure assumptions will govern this analysis:

- A hypothetical resident is assumed to live from birth to age 30 (EPA 1991) at a location 1.2 km (0.75 miles) southeast of the site boundary.

- This individual may come in direct contact with soil during outdoor activities. Some of this soil may be ingested.

- The individual may come in contact with surface water and sediments while wading in Woman Creek. Some of this may be ingested.

- Currently, the individual consumes all of his water from an uncontaminated residential well.

- The individual spends a majority of time at home, breathing air potentially influenced by the site. Inhalation exposure away from home is assumed to be negligible.

- The individual regularly eats fruits and vegetables raised in a backyard garden.

4.1.2 Current On-site Commercial/Industrial Land Use

The category of RFP personnel that spend the greatest amount of time in OU1 are the security specialists on routine patrol. The following exposure assumptions concerning this type of commercial/industrial use are:

- A security worker conducts routine vehicular patrols within OU1 for 30 minutes per day, over a period of 25 years.

- This individual occasionally leaves the patrol vehicle for closer visual inspections. During some of these excursions, he comes in direct contact with soil, surface water and sediments. Some of this soil is inadvertently ingested through failure to wash before eating, etc.

- The individual uses water supplied by the Denver Water Board for washing and drinking.

- The individual spends 30 minutes per workday at OU1, breathing air potentially influenced by OU1. Inhalation exposure away from the site is negligible.

4.1.3 Future On-site Residential Land Use

Both adult and child (0-6 yrs) receptors are considered. The following exposure assumptions govern this analysis:

- A hypothetical resident lives from birth to age 30 (EPA 1991b) at a location within the OU1 boundary.
- This individual comes into direct contact with soil during outdoor activities, and some of this soil is ingested.
- The individual comes in contact with surface water and sediments while wading in Woman Creek, and some of this is ingested.
- The individual spends a majority of time at home, breathing air potentially influenced by the site. Inhalation exposure away from home is negligible.
- The individual uses water supplied by the Denver Water Board for washing and drinking. Further discussion of the availability of ground water at OU1 is provided in Appendices B and C.
- The individual spends a typical workday at the site, breathing air potentially influenced by the site. Inhalation exposure away from the site is assumed to be negligible.

4.1.4 Future On-site Commercial Industrial Land Use

Current and projected development patterns in the area do not favor heavy industry, thus the term "industry" refers to light industry. The following exposure assumptions concerning commercial/industrial use are:

- A hypothetical worker works a typical work-year for 25 years.
- This individual comes in direct contact with soil during operation and maintenance activities. Some of this soil is ingested through failure to wash before eating, etc.

- The individual uses water supplied by the Denver Water Board for washing and drinking. Further discussion of the availability of ground water at OU1 is provided in Appendices B and C.

- The individual spends a typical workday at the site, breathing air potentially influenced by the site. Inhalation exposure away from the site is negligible.

4.1.5 Future On-site Ecological Reserve Land Use

Use of the site as an ecological reserve, potentially involving exposure to a hypothetical research biologist, is based on the following exposure assumptions:

- The hypothetical research biologist works in the field five days per week, on average, for 25 years (250 days per year over all four seasons).

- This individual comes in direct contact with soil during field activities, and some of this is ingested through failure to wash before eating, etc.

- The individual comes in direct contact with surface water and sediments during field activities, and some of the surface water and sediments are ingested.

- The individual uses water supplied by the Denver Water Board for washing and drinking. Further discussion of the availability of ground water at OU1 is provided in Appendices B and C.

- The individual spends a typical workday at the site, breathing air potentially influenced by the site. Inhalation exposure away from the site is negligible.

5.0 EXPOSURE PATHWAYS

Once potentially exposed populations and exposure scenarios have been identified and characterized, exposure pathways can be traced from the source to the receptor. An exposure pathway generally consists of five elements:

- A source of contaminants
- A contaminant release mechanism
- A medium (or media) to transport contaminants
- A point of contact between the contaminated medium and the receptor
- An exposure route (intake into the body, direct exposure, etc.)

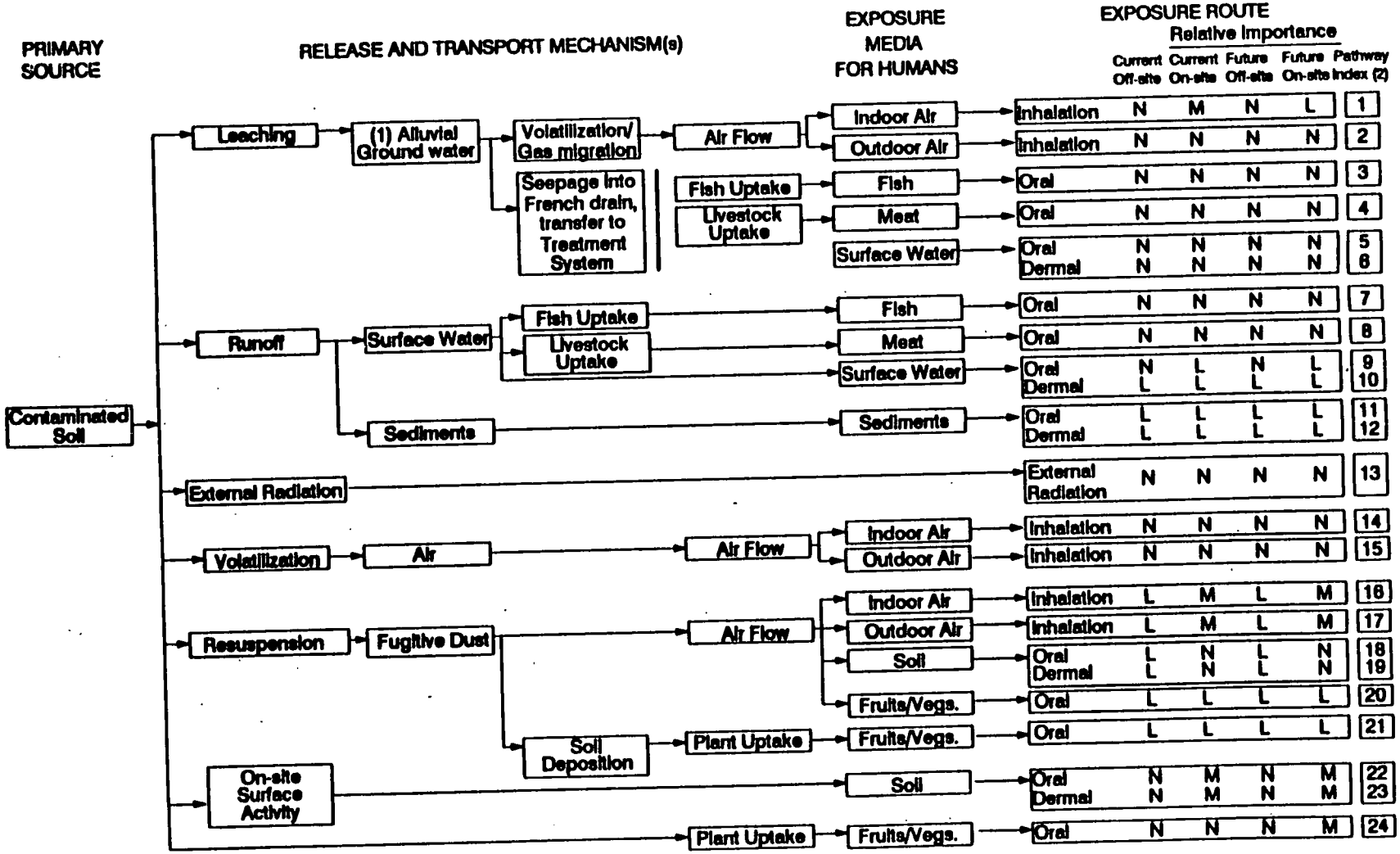
The field investigations conducted during Phases I and II of the Remedial Investigation (RI) have indicated contamination in unconfined ground water, soil, sediment, and surface water. Contaminants include chlorinated aliphatic hydrocarbon solvents, potentially toxic metals, pesticides, polychlorinated biphenyls, and radionuclides including actinides. These contaminants may be released to transport media by leaching, volatilization, resuspension of particulates by the wind, etc. Transport media may include surface water, ground water, air, soil, or biota. After transport to the location of the receptor, contact between the exposure media and the receptor (e.g., exposure to airborne particulate contamination) may occur. To complete the pathway, an exposure route into the body such as ingestion, inhalation, or dermal contact must occur. A conceptual model of theoretical exposure pathways is shown in Figure 5-1.

5.1 Complete Pathways for Quantitative Analysis

Table 5-1 lists potentially complete pathways for the current land use scenarios involving off-site residential use and on-site commercial/industrial use. The pathways with non-negligible potential for exposure are those associated with inhalation, and with direct contact and consumption by the receptor.

FIGURE 5-1

881 HILLSIDE AREA (OU-1) EXPOSURE PATHWAY CONCEPTUAL MODEL



(1) - The on-site alluvial groundwater system does not yield sufficient quantity of water to support residential use. See appendices B and C. On-site water is supplied by public water systems. Future off-site water is expected to be supplied by public water systems.

(2) - Pathways in Tables 5-1 through 5-2 have been indexed to Figure 5-1 for convenience.

N=NEGLIGIBLE; L=LOW; M=MEDIUM; H=HIGH

EXPFW-4.DRW

TABLE 5-1
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - CURRENT LAND USE
(Page 1 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
Off-site Resident	Inhalation of contaminated soil/dust particulates	Yes	Site contaminants may be blown off-site as fugitive dust.	16, 17
Off-site Resident	Inhalation of chemicals volatilized on site	No	Volatile chemicals near the soil surface were previously volatilized and no longer remain as supported by field instrument readings.	14, 15, 2
Off-site Resident	Inhalation of chemicals volatilized from ground water during home use	No	Off-site residential wells are not known to be contaminated.	None
Off-site Resident	Ingestion of contaminated well water	No	Off-site residential wells are not known to be contaminated.	None
Off-site Resident	Ingestion of wind-deposited soil	Yes	Children playing at home may be exposed to soil contaminated with fugitive dust associated with OU1.	18
Off-site Resident	Ingestion of *contaminants* that have accumulated in fish	No	Woman Creek flow east of RFP is negligible, and would not support development of sufficient aquatic species. There is currently no off-site contaminated surface water associated with OU1.	7
Off-site Resident	Ingestion of contaminated garden-grown fruits and vegetables	Yes	Plants may be grown in soil contaminated from fugitive dust.	20, 21

TABLE 5-1
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - CURRENT LAND USE
(Page 2 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
Off-site Resident	Ingestion of plants grown on-site	No	Site access is restricted.	20, 21, 24
Off-site Resident	Ingestion of livestock watered by surface water	No	Woman Creek flow east of RFP is negligible and low, and would not support use for this application. There is currently no off-site contaminated surface water associated with OU1.	8
Off-site Resident	Ingestion of surface water	No	There is currently no off-site contaminated surface water associated with OU1.	9
Off-site Resident	Ingestion of sediments	No	There is currently no off-site contaminated surface water associated with OU1.	11
Off-site Resident	Direct contact with contaminants in soil on the site	No	Site access is restricted. No credible means of exposing current off-site residents has been identified.	23
Off-site Resident	Dermal contact with potentially contaminated soils	Yes	Children playing at home may be exposed to soil contaminated with fugitive dust	
Off-site Resident	Dermal exposure to surface water	No	There is currently no off-site contaminated surface water associated with OU1.	10

TABLE 5-1
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - CURRENT LAND USE
(Page 3 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
Off-site Resident	Dermal exposure to sediments	No	There is currently no off-site contaminated surface water associated with OU1.	12
Off-site Resident	External radiation from on-site soils	No	Site access is restricted.	13
On-site Commercial/ Industrial Worker (Security Specialist)	Inhalation of chemicals volatilized from alluvial ground water.	No	Volatile chemicals in alluvial ground water could migrate upward, but would be significantly diluted outdoors.	1
On-site Commercial/ Industrial Worker	Inhalation of contaminated soil/dust particulates.	Yes	Valid while workers are on-site.	16, 17
On-site Commercial/ Industrial Worker	Inhalation of chemicals volatilized from soils.	No	Volatile near surface chemicals have been previously volatilized.	14, 15
On-site Commercial/ Industrial Worker	Ingestion of soil.	Yes	Workers may come into contact with contaminated soil.	22
On-site Commercial/ Industrial Worker	Ingestion of sediments	Yes	Workers may come into contact with contaminated sediments.	11
On-site Commercial/ Industrial Worker	Ingestion of surface water	Yes	Workers may come into contact with surface water	9
On-site Commercial/ Industrial Worker	Ingestion of contaminants that have accumulated in fish located in on-site ponds.	No	Workers are not expected to catch or eat fish from on-site ponds.	7

TABLE 5-1
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - CURRENT LAND USE
(Page 4 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
On-site Commercial/ Industrial Worker	Ingestion of fruits and vegetables grown on-site.	No	Workers are not expected to grow or eat vegetables from on-site.	20, 21, 24
On-site Commercial/ Industrial Worker	Ingestion of livestock or animals raised on-site.	No	Consumption of livestock or animals raised on-site is unlikely.	8
On-site Commercial/ Industrial Worker	Direct contact with contaminants in soil on the site.	Yes	Workers may come into contact with contaminated soil.	19, 23
On-site Commercial/ Industrial Worker	Dermal contact with sediments	Yes	Workers may come into contact with sediments	12
On-site Commercial/ Industrial Worker	Dermal contact with surface water	Yes	Workers may come into contact with surface water	10
On-site Commercial/ Industrial Worker	External radiation from radionuclides in soil.	No	Significant levels above natural background variation have not been observed.	13

These include inhalation of suspended particulates, and direct contact with or ingestion of surface water, sediments, and soil. Several pathways have little potential for exposure under present conditions. These include all on-site pathways that involve violating site security.

Potentially complete future pathways for the scenarios selected for quantitative assessment are listed in Table 5-2. These include potential exposure to a future on-site research biologist, future on-site commercial/industrial worker, and future on-site resident. Each pathway will be used in combination with specific exposure parameters to quantitatively assess potential exposure.

5.2 Exposure Parameters

Exposure parameters for each assumed scenario are listed in Tables 5-3 through 5-6. The values used are consistent with the concept of RME. The RME approach supersedes the previous method of determining an average and a worst-case exposure. The intent of the RME concept is to present exposure scenarios that are conservative yet credible and to avoid overly conservative exposure scenarios resulting from what McKone and Bogen (1991) refer to as the "creeping conservatism." According to EPA, the RME exposure scenario is reasonable because it is a product of factors, such as concentration and exposure frequency and duration, that are an approximate mix of values that reflect averages and 95th percentile distributions (EPA 1990b). Some of the values for an RME scenario are based on averages (e.g., body weights) while others are upper-bound values (e.g., intake/contact rates). The parameter values listed were extracted from the Risk Assessment Guidance for Superfund (RAGS) Volume 1 (EPA 1989), RAGS Supplemental Guidance "Standard Default Exposure Factors (EPA 1991)," and other relevant risk assessment literature.

TABLE 5-2
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - FUTURE LAND USE
(Page 1 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
On-site Research Biologist	Inhalation of contaminated soil/dust particulates	Yes	Valid while researchers on-site.	16, 17
On-site Research Biologist	Outdoor inhalation of chemicals volatilized from alluvial ground water.	No	Volatile chemicals in alluvial ground water could migrate upward, but would be significantly diluted outdoors.	2
On-site Research Biologist	Outdoor inhalation of chemicals volatilized from soils.	No	Volatile near surface chemicals have been previously volatilized.	15
On-site Research Biologist	Ingestion of surface water	Yes	While wading, incidental surface water ingestion may occur.	9
On-site Research Biologist	Ingestion of contaminants that have accumulated in fish located in on-site ponds	No	The researcher may collect fish for research, but will not eat them.	7
On-site Research Biologist	Ingestion of soil	Yes	Valid for inadvertent hand-to-mouth transfer due to soiled hands.	22, 18
On-site Research Biologist	Ingestion of animals grown on-site	No	Animal specimens may be collected for research, but will not eaten.	8
On-site Research Biologist	Ingestion of sediments	Yes	Ingestion of sediments from Woman Creek is possible.	11

TABLE 5-2
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - FUTURE LAND USE
(Page 2 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
On-site Research Biologist	Direct contact with contaminants in soil on the site	Yes	Contact possible during field and lab work.	19, 23
On-site Research Biologist	Dermal exposure to surface water	Yes	Contact with surface water from Woman Creek is possible.	10
On-site Research Biologist	Dermal exposure to sediments	Yes	Contact with sediments from Woman Creek is possible.	12
On-site Research Biologist	External radiation from radionuclides in soil	No	Significant levels above natural background variation have not been observed.	13
On-site Commercial/Industrial Worker	Indoor inhalation of chemicals volatilized from alluvial ground water.	Yes	Volatile chemicals in alluvial ground water could migrate upward and be concentrated indoors.	1
On-site Commercial/Industrial Worker	Inhalation of contaminated soil/dust particulates	Yes	Valid while workers are on-site.	16, 17
On-site Commercial/Industrial Worker	Inhalation of chemicals volatilized from soils	No	Volatile near surface chemicals have been previously volatilized.	14, 15
On-site Commercial/Industrial Worker	Ingestion of soil	Yes	Workers may come into contact with contaminated soil.	18, 22
On-site Commercial/Industrial Worker	Ingestion of contaminants that have accumulated in fish located in on-site ponds	No	Consumption of fish caught on-site is unlikely.	7

TABLE 5-2
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - FUTURE LAND USE
(Page 3 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
On-site Commercial/Industrial Worker	Ingestion of fruits and vegetables grown on-site	No	Consumption of produce grown on-site is unlikely.	20, 21, 24
On-site Commercial/Industrial Worker	Ingestion of livestock raised on-site	No	Consumption of livestock raised on-site is unlikely.	8
On-site Commercial/Industrial Worker	Direct contact with contaminants in soil on the site	Yes	Workers may come into contact with contaminated soil.	19, 23
On-site Commercial/Industrial Worker	External radiation from radionuclides in soil	No	Significant levels above natural background variation have not been observed.	13
On-Site Resident	Indoor inhalation of chemicals volatilized from alluvial ground water	Yes	Volatile chemicals may migrate through soils and concentrate indoors	14
On-Site Resident	Inhalation of contaminated soil/dust particulates	Yes	Site contaminants may be resuspended as fugitive dust	18
On-Site Resident	Ingestion of soil	Yes	Children or adults may come in contact with contaminated soil.	18, 22
On-Site Resident	Ingestion of surface water	Yes	While wading, incidental surface water ingestion may occur	9
On-Site Resident	Ingestion of sediments	Yes	Ingestion of sediments for Woman Creek is possible	11

TABLE 5-2
POTENTIALLY COMPLETE EXPOSURE PATHWAYS - FUTURE LAND USE
(Page 4 of 4)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Quantitative Evaluation?	Reason for Selection or Exclusion	Pathway Index to Figure 5-1
On-Site Resident	Ingestion of contaminants that have accumulated in fish located in on-site ponds	No	Consumption of fish caught on-site is unlikely	7
On-Site Resident	Dermal contact with potentially contaminated soils	Yes	Children or adults may come in contact with contaminated soil	19, 23
On-Site Resident	Dermal exposure to surface water	Yes	Contact with surface water from Woman Creek is possible	10
On-Site Resident	Dermal exposure to sediments	Yes	Contact with sediments from Woman Creek is possible	12
On-Site Resident	External radiation from radionuclides in soil	No	Significant levels above natural background variation have not been observed	13

TABLE 5-3
CURRENT AND FUTURE RESIDENTIAL OCCUPANT EXPOSURE ASSUMPTIONS

Parameter	Adult Value	Child Value	Reference	Variable Rating
Ingestion - soil and sediments	100 mg/day	200 mg/d 0-6 y	EPA 1991	C
Ingestion - fruits and vegetables [a]	0.08 kg/day	0.042 kg/day[d]	EPA 1990b	C
Inhalation	20 m^3/day	9.6 m^3/d[e]	RHH 1984	T
Adherence factor	0.6 mg/cm^2	0.9 mg/cm^2	EPA 1992	T
Dermal absorption factor	0.001 metals, 0.4 organics	0.001 metals, 0.4 organics	EPA 1992	T
Body weight	70 kg	15 kg	EPA 1989	T
Body surface area	3000 cm^2	1400 cm^2	EPA 1990b	T
Exposure duration	16 hr/day - 350 days/yr	24 hr/day - 350 d/y	EPA 1991	C
Exposure time - surface water	2.0 hr/event [c]	2.6 hr/event	EPA 1991	C
Exposure frequency - surface water	7 events/y	7 events/y	EPA 1991	T
Ingestion – surface water	50 ml/event	50 ml/event	EPA 1989	C
Matrix Factor[b]	0.15	0.15	Poiger and Schlatter 1980	T
Averaging Time (carcinogenic effects)	70 y	N/A	EPA 1989	C
Chronic Exposure Period	30 y	6 y	EPA 1989	C
Bio-availability- soil and sediments	0.9	0.9	Professional Judgement	C

T Typical
C Conservative
a Used for Current Off-site Residential Land Use
b This factor quantifies the effect of soil matrix to reduce dermal absorption of chemicals.
Poiger and Schlatter (1980) determined that the soil matrix decreases the dermal absorption of chemicals (TCDD).
c Adult exposure was assumed to be less than child's
d value for child (0-10) is assumed to be 1/2 the adult value
e age-weighted average

TABLE 5-4
CURRENT COMMERCIAL/INDUSTRIAL WORKER (SECURITY SPECIALIST) EXPOSURE ASSUMPTIONS

Parameter	Adult Value	Reference	Variable Rating
Ingestion-soil and sediments	50 mg/day	EPA 1991	C
Inhalation	18 m^3/workday	EPA 1991	T
Adherence factor	0.6 mg/cm^2	EPA 1992	T
Dermal absorption factor	0.001 metals, 0.4 organics	EPA 1992	T
Body surface area	3000 cm^2	EPA 1990b	T
Body weight	70 kg	EPA 1989	T
Exposure duration	0.5 hr/day - 250 day/yr - 25 yrs	EPA 1989	C
Matrix factor[a]	0.15	Poiger and Schlatter 1980	T
Exposure time (surface water)	2.0 hr/event	EPA 1989	C
Exposure frequency (surface water)	7 events/y	EPA 1989	T
Ingestion- surface water	0.02 ml/event[b]	Professional Judgement	C
Bio-availability	0.9	Professional Judgement	C
Averaging Time (carcinogenic effects)	70 y	EPA 1989	C
Chronic Exposure Period	25 y	EPA 1991	C

T Typical
C Conservative
a This factor quantifies the effect of soil matrix to reduce dermal absorption of chemicals.
Poiger and Schlatter (1980) determined that the soil matrix decreases dermal absorption of chemicals.
b Amount of water contained in 50 mg of saturated sediments, assuming wet density of 1.4 g/cm^3 and porosity of 50 percent.

TABLE 5-5
FUTURE ECOLOGICAL RESERVE RESEARCH BIOLOGIST EXPOSURE ASSUMPTIONS

Parameter	Adult Value	Reference	Variable Rating
Ingestion– soil and sediments	100 mg/day	EPA 1991	C
Inhalation	18 m^3/workday	EPA 1991	T
Adherence factor	0.6 mg/cm^2	EPA 1992	T
Dermal absorption factor	0.001 metals, 0.4 organics	EPA 1992	T
Body surface area	3000 cm^2	EPA 1990b	T
Body weight	70 kg	EPA 1991	T
Exposure duration	7, 100, 250 days - 8 hr/day - 250 day/yr - 25 yrs - 2 days/wk	EPA 1991	C
Matrix factor[a]	0.15	Poiger and Schlatter 1980	T
Exposure time (surface water)	2.6 hr/event	EPA 1989	C
Exposure frequency (surface water)	7 events/y	EPA 1989	T
Ingestion - surface water	0.02 ml/event[b]	Professional Judgement	C
Averaging Time (carcinogenic effects)	70 y	EPA 1989	C
Chronic Exposure Period	25 y	EPA 1991	C

T Typical
C Conservative
a This factor quantifies the effect of soil matrix to reduce dermal absorption of chemicals. Poiger and Schlatter (1980) determined that the soil matrix decreases the dermal absorption of chemicals.
b Amount of water contained in 50 mg of saturated sediments, assuming wet density of 1.4 g/cm^3 and porosity of 50% .

TABLE 5-6
FUTURE COMMERCIAL/INDUSTRIAL WORKER EXPOSURE ASSUMPTIONS

Parameter	Adult Value	Reference	Variable Rating
Ingestion-soil and sediments	50 mg/day	EPA 1991	T
Inhalation	18 m^3/workday	EPA 1991	T
Adherence factor	0.6 mg/cm^2	EPA 1992	T
Dermal absorption factor	0.001 metals, 0.4 organics	EPA 1992	T
Body surface area	3000 cm^2	EPA 1991	T
Body weight	70 kg	EPA 1989	T
Exposure duration	8 hr/day - 250 day/yr - 25 yrs	EPA 1989	C
Matrix factor[a]	0.15	Poiger and Schlatter 1980	T
Bio-availability	0.9	Professional Judgment	C
Averaging Time (carcinogenic effects)	70 y	EPA 1989	C
Chronic Exposure Period	25 y	EPA 1991	C

T Typical
C Conservative
a This factor quantifies the effect of soil matrix to reduce dermal absorption of chemicals. Poiger and Schlatter (1980) determined that the soil matrix decreases dermal absorption of chemicals.

6.0 SUMMARY

Exposure scenarios have been identified based on an inventory of current land uses and available information on DOE policy and community plans. Based on the concept of RME, the scenarios identified are classified as improbable, plausible, or credible events, defined in this document as 1) improbable - unlikely to occur; 2) plausible - conceivable, though not expected; and 3) credible - believable with reasonable grounds. In general, land uses that are more likely to occur will be used for quantitative exposure assessment. Two scenarios, current on-site commercial/industrial use and future on-site residential use, have been included at the request of EPA and CDH.

The land use scenarios selected for quantitative exposure assessment are:

- Current Off-site Residential Use
- Current On-site Commercial/Industrial Use
- Future On-site Residential Use
- Future On-site Commercial/Industrial Use
- Future On-site Ecological Reserve Use

For those scenarios that will be quantitatively assessed, complete exposure pathways and exposure parameters have been identified. As suggested by the EPA, a combination of exposure parameters have been identified that will result in an RME estimate. Quantitative exposure assessment of these RME scenarios will be conducted as part of the PHE portion of the BRA.

7.0 REFERENCES

ACGIH, 1991-1992. *Threshold Limit Values and Biological Exposure Indices for 1991-1992.* American Conference of Governmental Industrial Hygienists. Cincinnati, Ohio.

AEC, 1972. Environmental Statement. *Land Acquisition, Rocky Flats Plant, Colorado.* United States Atomic Energy Commission April 1972

DOE, 1987. *Real Property and Site Development Planning,* DOE 4300.1B, July 1, 1987.

DOE, 1989. *Radiation Protection for Occupational Workers,* DOE 5480.11, Revised July 20, 1989.

DOE, 1990. *1989 Population, Economic, and Land Use Data for Rocky Flats Plant, Golden, Colorado,* August, 1990.

DOE, 1991a. *Nuclear Weapons Complex Reconfiguration Study.* January 1991.

DOE, 1991b. United States Government Memorandum. RFP Site-Specific Plan. July 7, 1991.

DOE, 1991c. *Environmental Restoration and Waste Management Five-Year Plan, Fiscal Years 1993-1997.* August 1991.

DOE, 1991d. Department of Energy Rocky Flats Office, Internal Memo dated November 26, 1991.

DOE, 1991e. *Past Remedy Report, Operable Unit No. 3—IHSS 199*, U.S. Department of Energy, Golden, Colorado, May 1991.

DOE, 1991f. *Historical Information Summary and Preliminary Health Risk Assessment, Operable Unit No. 3—Sites 200-202*, U.S. Department of Energy, Golden, Colorado, June 1991.

EG&G, 1990. *Draft Task 3, Shallow High Resolution Seismic Reflection Profiling in the Medium Priority Sites (Operable Unit No. 2) at the Rocky Flats Plant.*

EG&G, 1991a. *Operable Unit No. 1, IM/IRA Implementation Documentation*, February 1991.

EG&G, 1991b. *Final 881 Hillside Area Phase III, RFI/RI Work Plan: U.S. Department of Energy*, Rocky Flats Plant, Golden, Colorado, March 1991.

EG&G, 1992, Phase II Geologic Characterization Data Acquisition Surface Geologic Mapping of the Rocky Flats Plant and Vicinity, Jefferson and Boulder Counties, Colorado, March 1992.

EPA, 1989. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual.* Office of Emergency and Remedial Response. EPA/540/1-89/002.

EPA, 1990a. *National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule.* Federal Register, Vol. 55, No. 46.

EPA, 1990b. *Exposure Factors Handbook. Office of Health and Environmental Assessment.* EPA 1600/8-89/043. March, 1990.

EPA, 1991. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Supplemental Guidance*: "Standard Default Exposure Values." OSWER Directive 9285.6-03.

EPA, 1992. *Dermal Exposure Assessment: Principles and Applications.* Office of Environmental Assessment. EPA/600/8-91/011B. January 1992.

Hurr, R.T., 1976. *Hydrology of a Nuclear-Processing Plant Site, Rocky Flats, Jefferson County, Colorado: U.S. Geological Survey Open File Report 76-268.*

IAG, 1991. *Rocky Flats Interagency Agreement between the State of Colorado, the Environmental Protection Agency, and the Department of Energy*, (1-22-91).

IGA, 1989. *Intergovernmental Agreement*, between Jefferson County, The City of Arvada, Jefferson Center Metropolitan District No. 1 and Jefferson Center Associates, June 1989.

JEFFCO, 1989. *Northeast Land Use Inventory*, Jefferson County Planning Department, Golden, Colorado, revised February 1989.

JEFFCO, 1990. *North Plains Community Plan*, Jefferson County Planning Department, Golden, Colorado, April 1990.

McKone, T.E., and K.T., Bogen, 1991. "Predicting the Uncertainties in Risk Assessment." *Environmental Science and Technology*, 25, 10.

NCRP, 1987. *Exposure of the Population in the United States and Canada from Natural Background Radiation.* National Council on Radiation Protection and Measurements. NCRP Report No. 94, 1987.

Poiger, H. and Schlatter, C., 1980. "Influence of solvents and adsorbents on dermal and intestinal absorption of TCDD," *Food, Cosmetology, and Toxicology*, 18, pp. 477-481.

RHH, 1984. *The Health Physics and Radiological Health Handbook*, Nuclear Lectern Associates, Olney, Maryland.

Sedman, R.M., 1989. "The Development of Applied Action Levels for Soil Contact: A Scenario for the Exposure of Humans to Soil in a Residential Setting." *Environmental Health Perspective*, 79, pp. 291-313.

DESCRIPTION OF MODELS FOR THE PUBLIC HEALTH EVALUATION OPERABLE UNIT ONE ROCKY FLATS PLANT, COLORADO

TECHNICAL MEMORANDUM NO. 7

REVISION 2.0

Department of Energy
Rocky Flats Plant
Golden, Colorado

July 1992

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ACRONYMS

AMAD	Aerosol Mean Aerodynamic Diameter
CDH	Colorado Department of Health
CEARP	Comprehensive Environmental Assessment and Response Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminants of concern
DOE	Department of Energy
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FS	Feasibility Study
HSU	hydrostratigraphic unit
IHSS	Individual Hazardous Substance Sites
IAG	Interagency Agreement
NPDES	National Pollutant Discharge Elimination System
OU1	Operable Unit 1
PCE	Tetrachloroethylene
PHE	public health evaluation
PM-10	particulate mass ≤ 10 microns
QA	quality assurance
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
RCRA	Resource Conservation and Recovery Act
RAGS	Risk Assessment Guidance for Superfund
RFP	Rocky Flats Plant
SCS	Soil Conservation Service
SID	South Interceptor Ditch
TSP	total suspended particulates
USLE	Universal Soil Loss Equation
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

This document provides a description of models selected to perform contaminant transport modeling at OU1. This work is part of the OU1 Remedial Investigation (RI) and Feasibility Study (FS), and results of the modeling at OU1 will be used in the public health evaluation (PHE) of the baseline risk assessment.

The conceptual model for OU1 is based on data that have been collected at the site as part of Phases I, II, and III of the RI, and on data collected during ongoing sampling programs. The following models were selected to meet the requirements of the PHE:

- The Jury and Johnson models for soil gas transport
- The Universal Soil Loss Equation (USLE) and associated equations for surface water transport in overland flow to the South Interceptor Ditch (SID)
- MILDOS-AREA for atmospheric modeling to model emission from the source, transport in air, and deposition at the receptor locations of contaminants originating from OU1. MILDOS-AREA will be coupled with the plant uptake (root and foliar) models contained in the RESRAD code and the consumption and occupancy factors established in Technical Memorandum No. 6 and MILDOS-AREA simulated concentrations for receptor concentration estimates.

Data required to conduct modeling for the PHE were also evaluated (Phases I,II, and III of the RI) and are considered adequate to complete modeling for the PHE.

1.0 INTRODUCTION

This document provides a general description of the 881 Hillside Area, Operable Unit 1 (OU1), at the Rocky Flats Plant (RFP) as well as a description of models selected to perform contaminant transport modeling for OU1. The goal of the modeling activities is to simulate contaminant migration from source areas in soils, ground water, surface water, sediments, and air to potential on-site and off-site receptors. The results of the modeling will be used in the PHE of the baseline risk assessment, and may also be used for the environmental evaluation. The PHE is being completed as part of the Phase III OU1 Remedial Investigation and Feasibility Study (RI/FS).

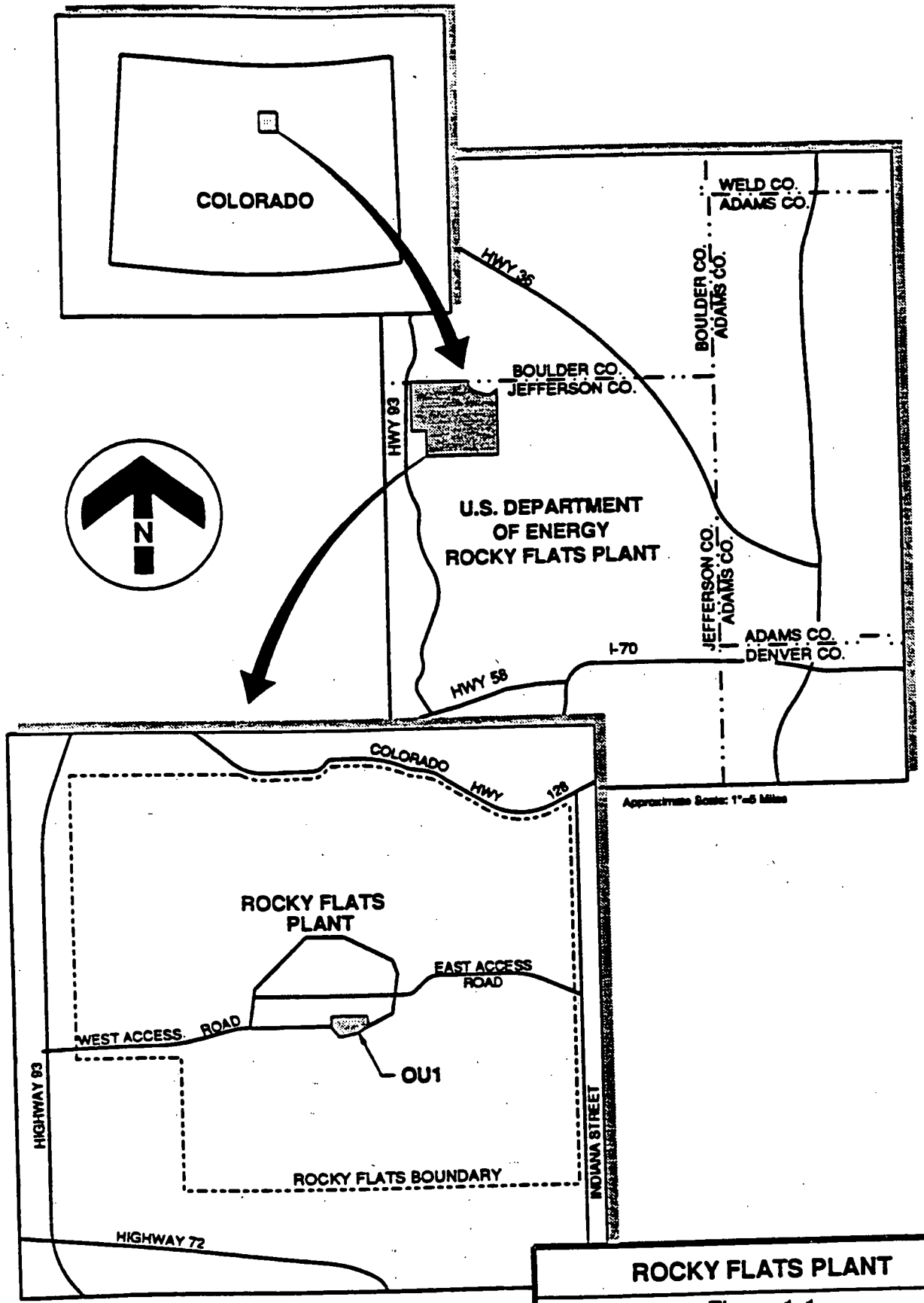
The OU1 RI/FS is part of a comprehensive, phased program of site characterization, remedial investigations, feasibility studies, and remedial/corrective actions currently in progress at RFP. These investigations are pursuant to the U.S. Department of Energy (DOE) Environmental Restoration Program (ERP), formerly known as the Comprehensive Environmental Assessment and Response Program (CEARP), which is a Compliance Agreement between DOE, the U.S. Environmental Protection Agency Region VIII (EPA) and the Colorado Department of Health (CDH) dated July 31, 1986, and the Federal Facility Agreement and Consent Order (known as the Interagency Agreement [IAG]). The program, developed by DOE, EPA, and CDH in response to these agreements, addresses Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) issues and has been integrated with the ERP. In accordance with the IAG, the CERCLA terms "Remedial Investigation" and "Feasibility Study" in this document are considered equivalent to the RCRA terms "RCRA Facility Investigation" and "Corrective Measures Study," respectively (EG&G 1991b).

Several transport models are described in this document. Two models that may be used to characterize the transport of volatile organic compounds (VOCs) from ground water into the

structure of a potential on-site receptor are described in Section 3.2. These two models are documented in Johnson and Ettinger (1991) and Jury, Spencer, and Farmer (1983). Because the French drain is designed to capture shallow contaminated ground water, ground-water modeling is not discussed in this report. The model that may be used to simulate surface water transport in overland flow to the South Interceptor Ditch (SID) is the USLE and associated equations, described in Section 3.4. MILDOS-AREA modeling and measured soil concentrations results will be coupled with the root-zone uptake and foliar deposition models in Gilbert et al. (1989) to characterize uptake of contaminants in vegetation.

1.1 *Site Location and General Site Conditions*

The RFP is located in northern Jefferson County, Colorado, approximately 26 kilometers (km) (16 miles) northwest of Denver (Figure 1-1). Other cities in proximity to RFP include Boulder, Westminster, and Arvada, which are located less than ten miles to the northeast, east, and southeast, respectively. The plant consists of approximately 26.5 square kilometers (km^2) (6,550 acres) of federally owned land in Sections 1 through 4 and 9 through 15 of T2S, R70W, 6th principal meridian. Major buildings are located within the 1.6 km^2 (400 acres) RFP security area. The security area is surrounded by a 24.9 km^2 (6,150 acres) buffer zone. The natural environment of the RFP is directly east of the north-south trending Front Range and is located about 26 km (16 miles) east of the Continental Divide, at an elevation of approximately 1,800 meters (m) (6,000 feet [ft]) above mean sea level (msl). The RFP is located on a broad, eastward sloping plain of coalescing alluvial fans developed along the Front Range. The fans extend about 5 miles in an eastward direction from their origin at Coal Creek Canyon and terminate on the east at a break in slope to low rolling hills. The operational area at RFP is located near the eastern edge of the fans on a terrace between the stream-cut valleys of North Walnut Creek and Woman Creek (EG&G 1991b).



ROCKY FLATS PLANT

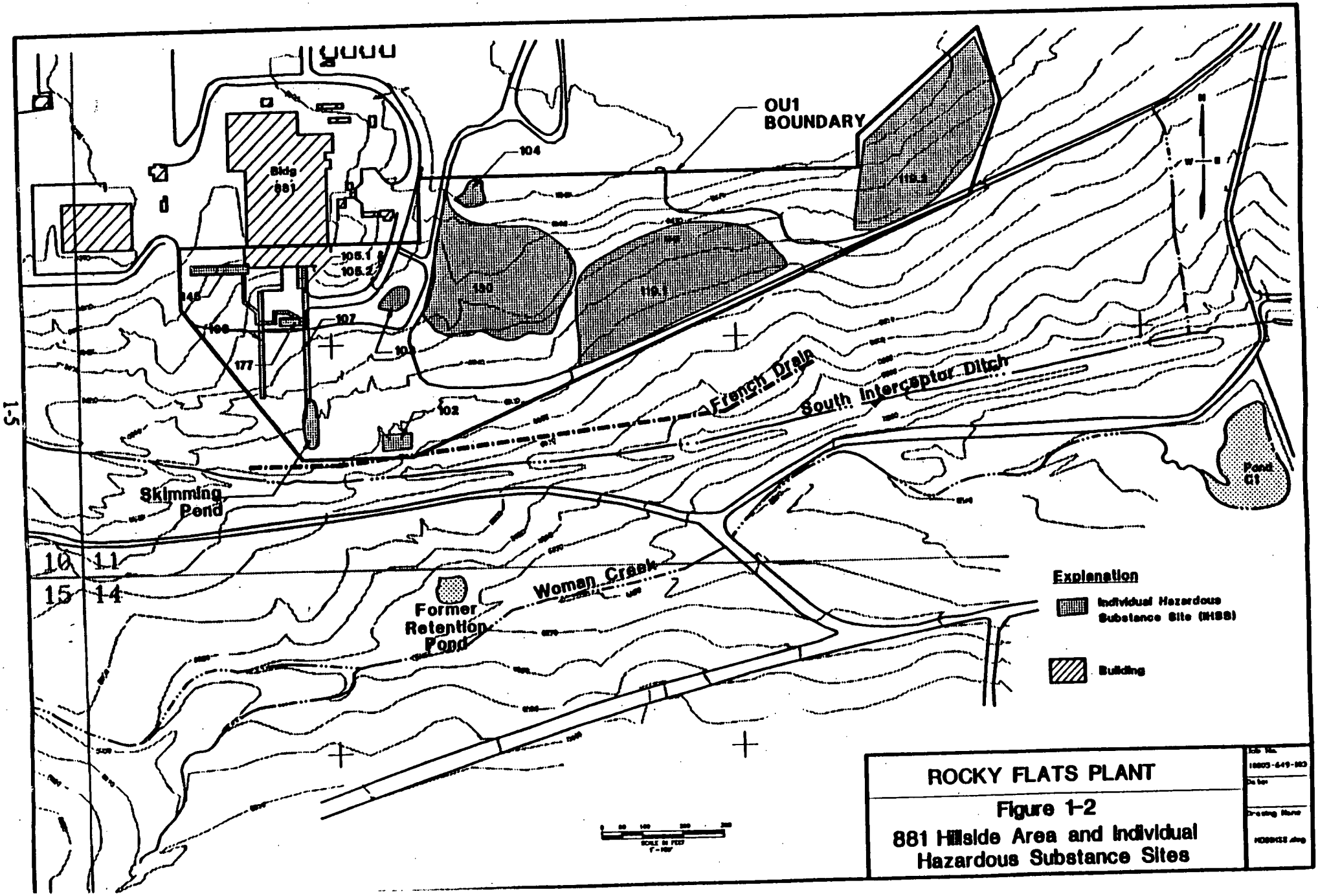
Figure 1-1
General Location of
Rocky Flats Plant

The OU1 area is located on the south side of the RFP security areas, is south-facing, and slopes towards Woman Creek, south and east of building 881. Individual Hazardous Substance Sites (IHSS) were designated high priority because of their suspected relationship to ground-water contamination (DOE 1987). Figure 1-2 shows the location of OU1 and the IHSS locations within the area. The following 12 sites are designated as IHSSs at OU1:

- Oil Sludge Pit Site (IHSS 102)
- Chemical Burial Site (IHSS 103)
- Liquid Dumping Site (IHSS 104)
- Out-of-service Fuel Oil Tank Sites (IHSS 105.1 and 105.2)
- Outfall Site (IHSS 106)
- 881 Hillside Oil Leak Site (IHSS 107)
- Multiple Solvent Spill Sites (IHSS 119.1 and 119.2)
- Radioactive Site - 800 Area Site #1 (IHSS 130)
- Sanitary Waste Line Leak Site (IHSS 145)
- Building 885 Drum Storage Site (IHSS 177)

A more detailed description of each IHSS and its type of contamination can be found in the Phase III RCRA Facility Investigation (RFI)/RI Work Plan (EG&G 1991b).

A French drain was recently constructed at the site in compliance with an interim measure/interim remedial action (EG&G 1991a) prepared as part of the IAG. The French drain is designed to capture shallow contaminated ground water migrating down the hillside toward Woman Creek (EG&G 1991a; EG&G 1991d), and is discussed further in Sections 2.0 and 3.0.


OU1
BOUNDARY
Bldg
881
104
105.1
105.2
106
107
108
177
102
130
119.1
119.2
French Drain
South Interceptor Ditch
Pond
C1
Skimming
Pond
Former
Retention
Pond
Woman Creek
10
11
15
14
1-5
Explanation
Individual Hazardous
Substance Site (IHSS)
Building
ROCKY FLATS PLANT
Figure 1-2
881 Hillside Area and Individual
Hazardous Substance Sites

1.2 Purpose and Scope

The purpose of this document is to provide a description of appropriate soil gas transport, surface water transport, and airborne emissions models for use at OU1 that fulfill the requirements of the IAG (1991, Section VII.D.1.b.):

> In addition, DOE shall submit for review and approval a description of the fate and transport models that will be utilized, including a summary of the data that will be used with these models.

The model selection process focused on models appropriate for simulating the migration of contaminants through the saturated zone, the transport of VOCs from the unsaturated zone (soil gas), sediment transport in overland flow of surface water, and the airborne transport of contaminants.

This document does not describe the technical approach to be used in applying selected models to the site-specific conditions at OU1; that will be described in detail in the Phase III RI and PHE reports. The methods to be used to assess the reliability of the modeling results will be based, in part, on the general guidelines provided by the International Atomic Energy Agency (IAEA 1989).

Modeling activity quality assurance (QA) is covered by the site wide QA plan (EG&G 1991e). Modeling QA will include model verification (defined in Section 3.1), checks on calculations, and technical review of modeling methods, assumptions, results and interpretations.

The selected models will be used to assess the risk to potential receptors identified in Technical Memorandum No. 6 (DOE 1992). Hypothetical ground water, surface water, and

airborne contaminant pathways and receptor exposure scenarios are illustrated in Figures 1-3, 1-4, 1-5, 1-6, and 1-7. Figure 1-3 shows potential contaminant pathways and exposure receptors for current off-site residential scenarios. Figure 1-4 shows potential contaminant pathways to a future on-site commercial/industrial receptor. Figure 1-5 shows potential contaminant pathways to a future on-site ecological-reserve receptor. Each of these exposure scenarios is discussed in detail in Technical Memorandum No. 6 (DOE 1992). Two additional scenarios were added at the request of EPA and CDH and are shown in Figures 1-6 and 1-7. Figure 1-6 illustrates the exposure scenario for future on-site resident and Figure 1-7 illustrates the exposure scenario for the current on-site commercial/industrial receptor.

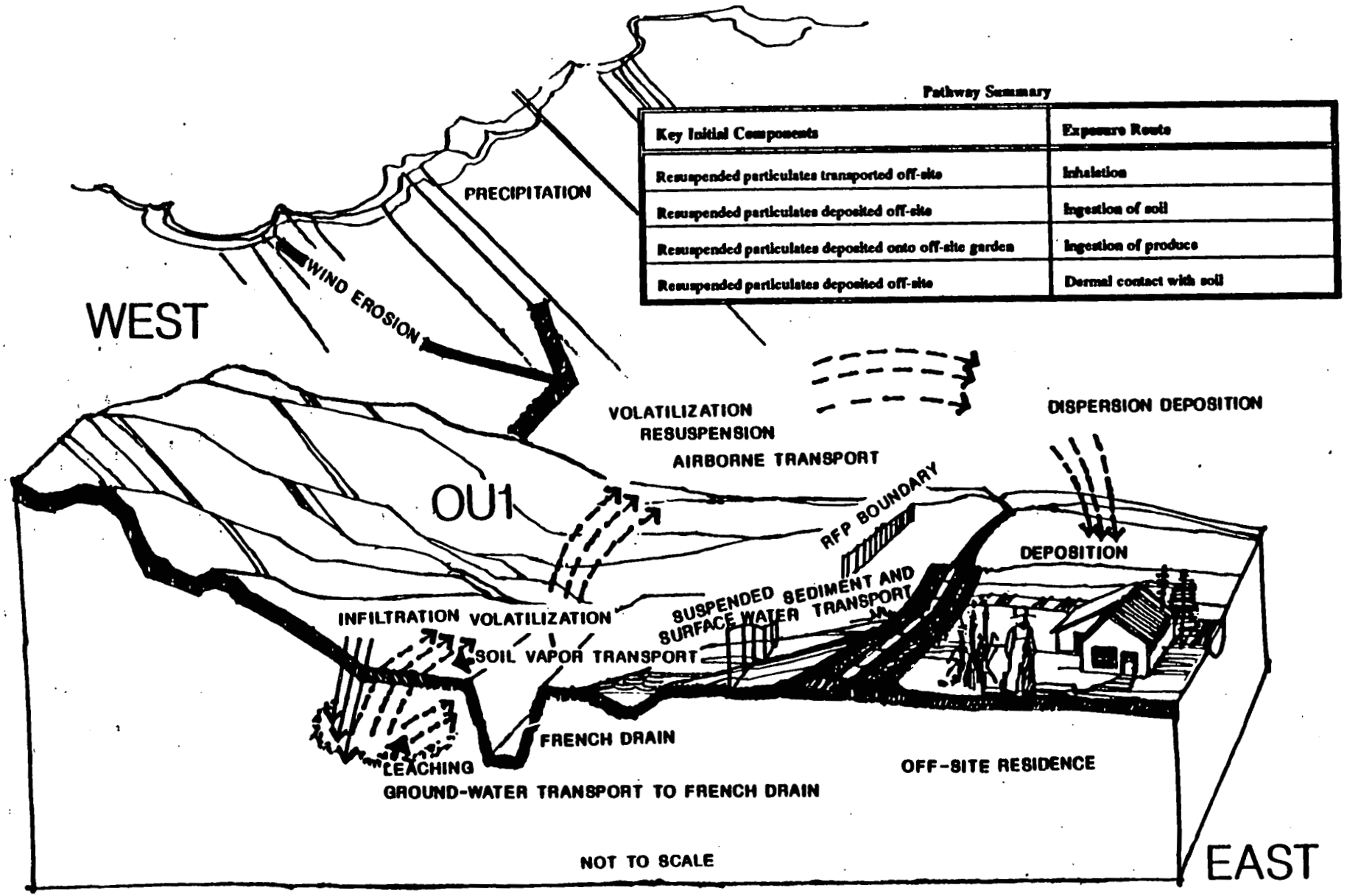


FIGURE 1-3

CURRENT OFF-SITE RESIDENTIAL USE

Pathway Summary

Key Initial Components	Exposure Route
Organics volatilized from alluvial ground water and migrating into surface structures	Inhalation
On-site resuspended particulates	Inhalation
Occasional contact with soil while at work	Ingestion of soil
Occasional contact with soil while at work	Dermal contact with soil

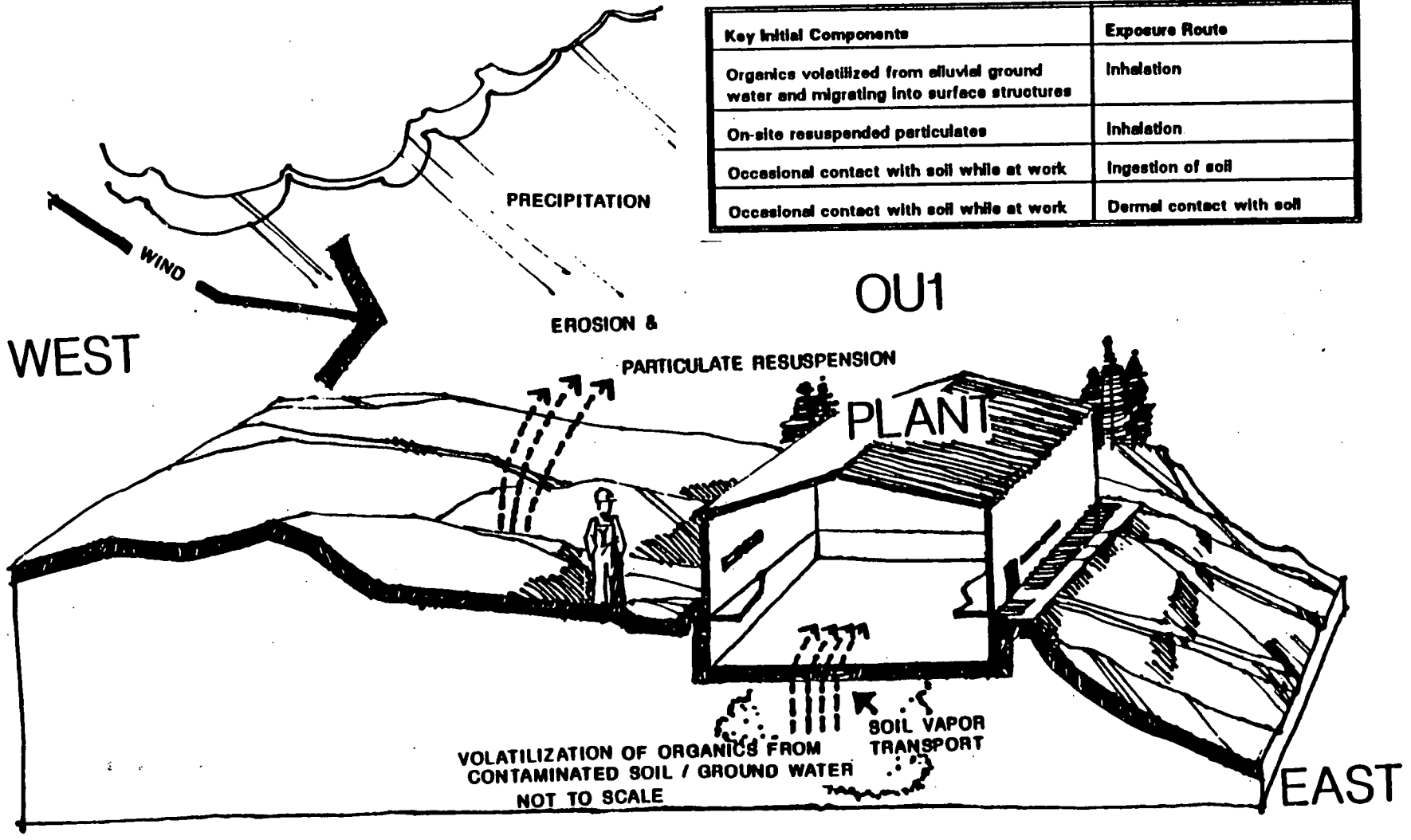


FIGURE 1-4
FUTURE ON-SITE COMMERCIAL/ INDUSTRIAL USE

Pathway Summary

Key Initial Components	Exposure Route
On-site resuspended particulates	Inhalation
On-site field research in Woman Creek	Ingestion of surface water
On-site field research in Woman Creek	Ingestion of sediments
On-site field research in Woman Creek	Dermal contact with surface water
On-site field research in Woman Creek	Dermal contact with sediments
On-site field research	Ingestion of soil
On-site field research	Dermal contact with soil

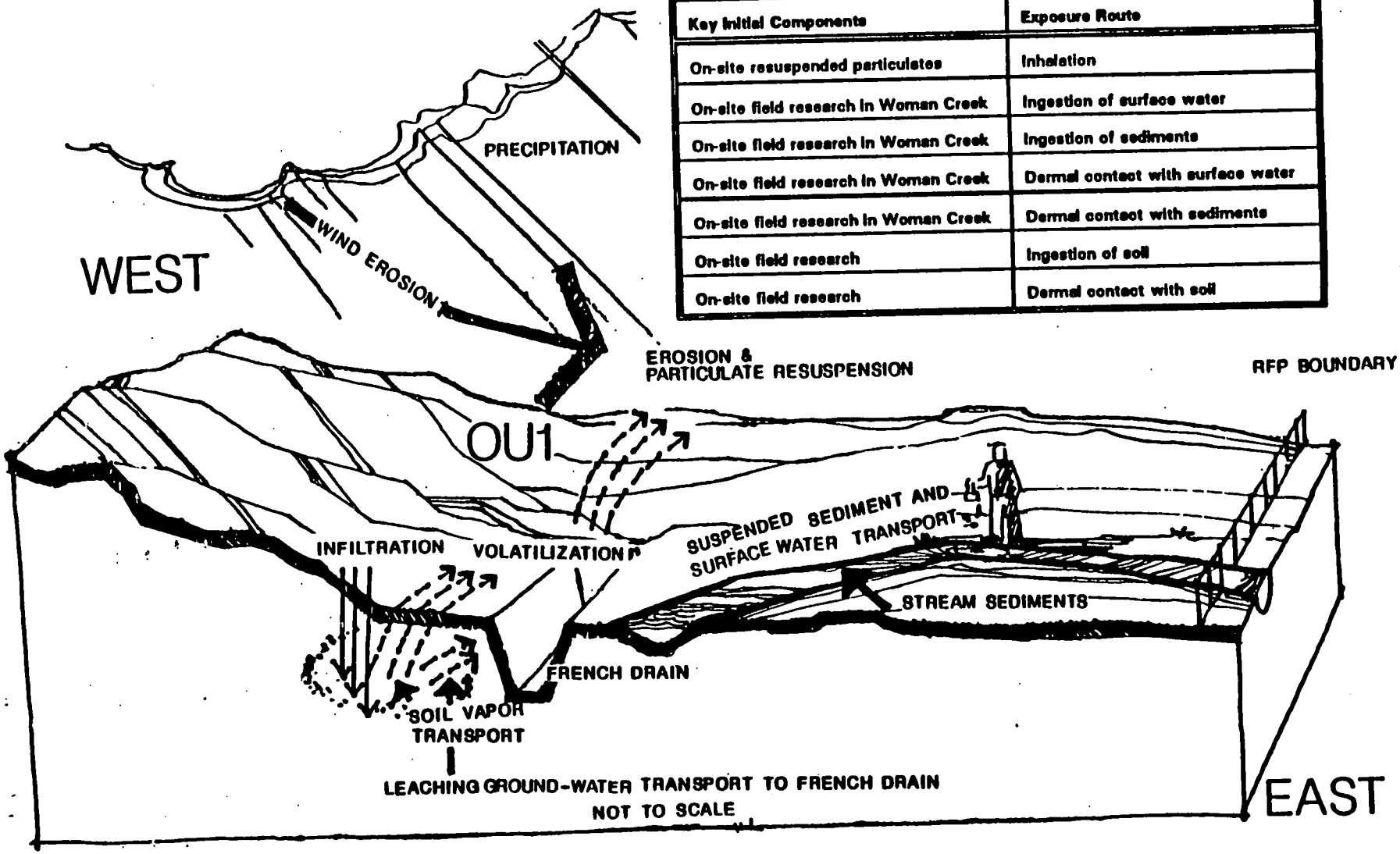


FIGURE 1-5
FUTURE ON-SITE ECOLOGICAL RESERVE USE

Pathway Summary

Key Initial Components	Exposure Route
Organics volatilized from alluvial ground water and migrating into surface structures	Inhalation
On-site resuspended particulates	Inhalation
Occasional contact with soil	Ingestion
Occasional contact with soil	Dermal Adsorption
On-site wading in Woman Creek	Ingestion of surface water
On-site wading in Woman Creek	Ingestion of sediments
On-site wading in Woman Creek	Dermal contact with surface water
On-site wading in Woman Creek	Dermal contact with sediments

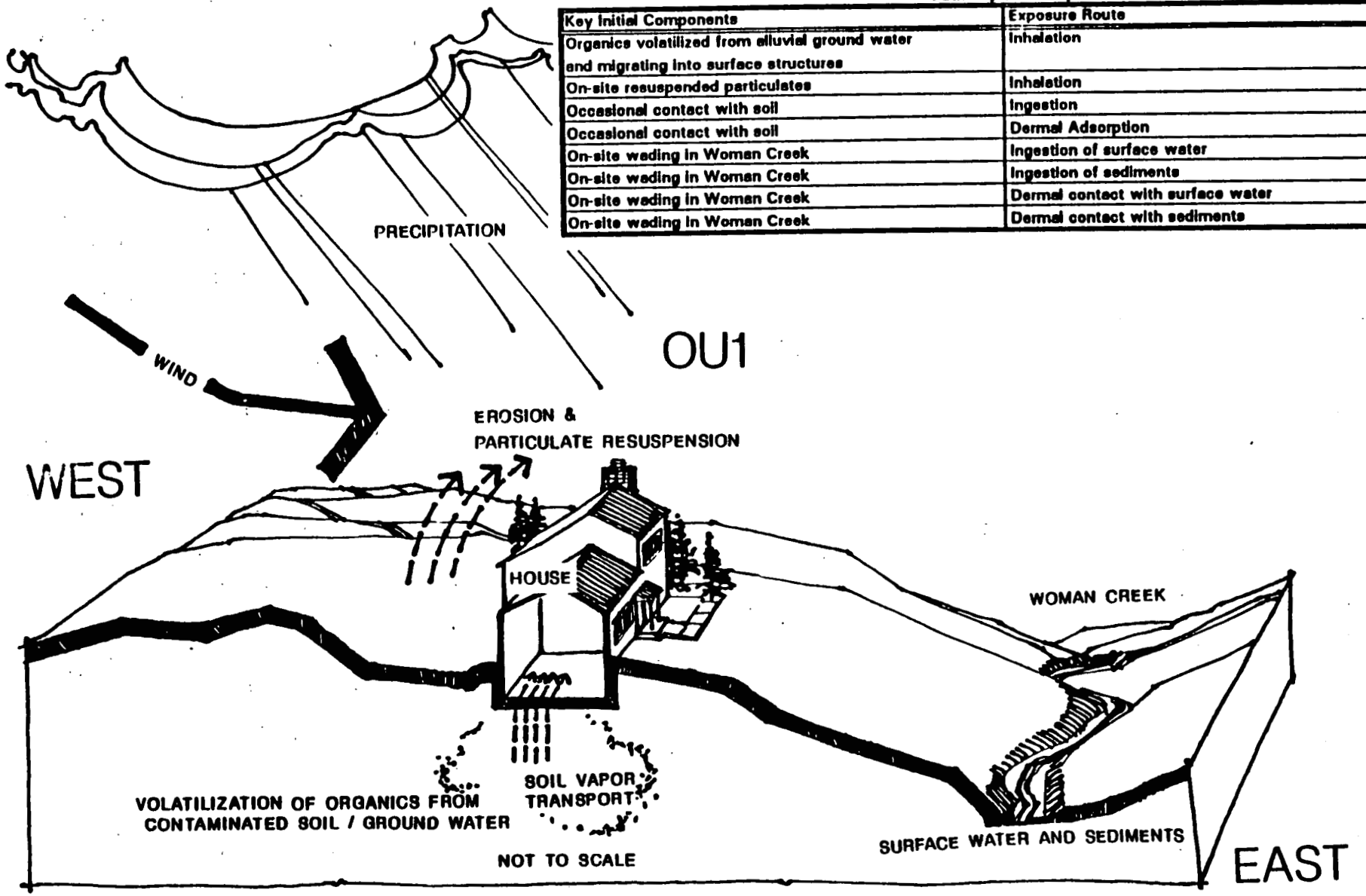


FIGURE 1-6

FUTURE ON-SITE RESIDENTIAL USE

Pathway Summary

Key Initial Components	Exposure Route
On-site resuspended particulates •	Inhalation
Infrequent contact with soil while at work •	Ingestion
Infrequent contact with soil while at work •	Dermal contact
Infrequent contact with surface water while at work •	Ingestion
Infrequent contact with surface water while at work •	Dermal contact
Infrequent contact with sediments while at work •	Ingestion
Infrequent contact with sediments while at work •	Dermal contact

• Security specialist conducts occasional vehicular patrols and may infrequently exit the vehicle to investigate unusual features or occurrences.

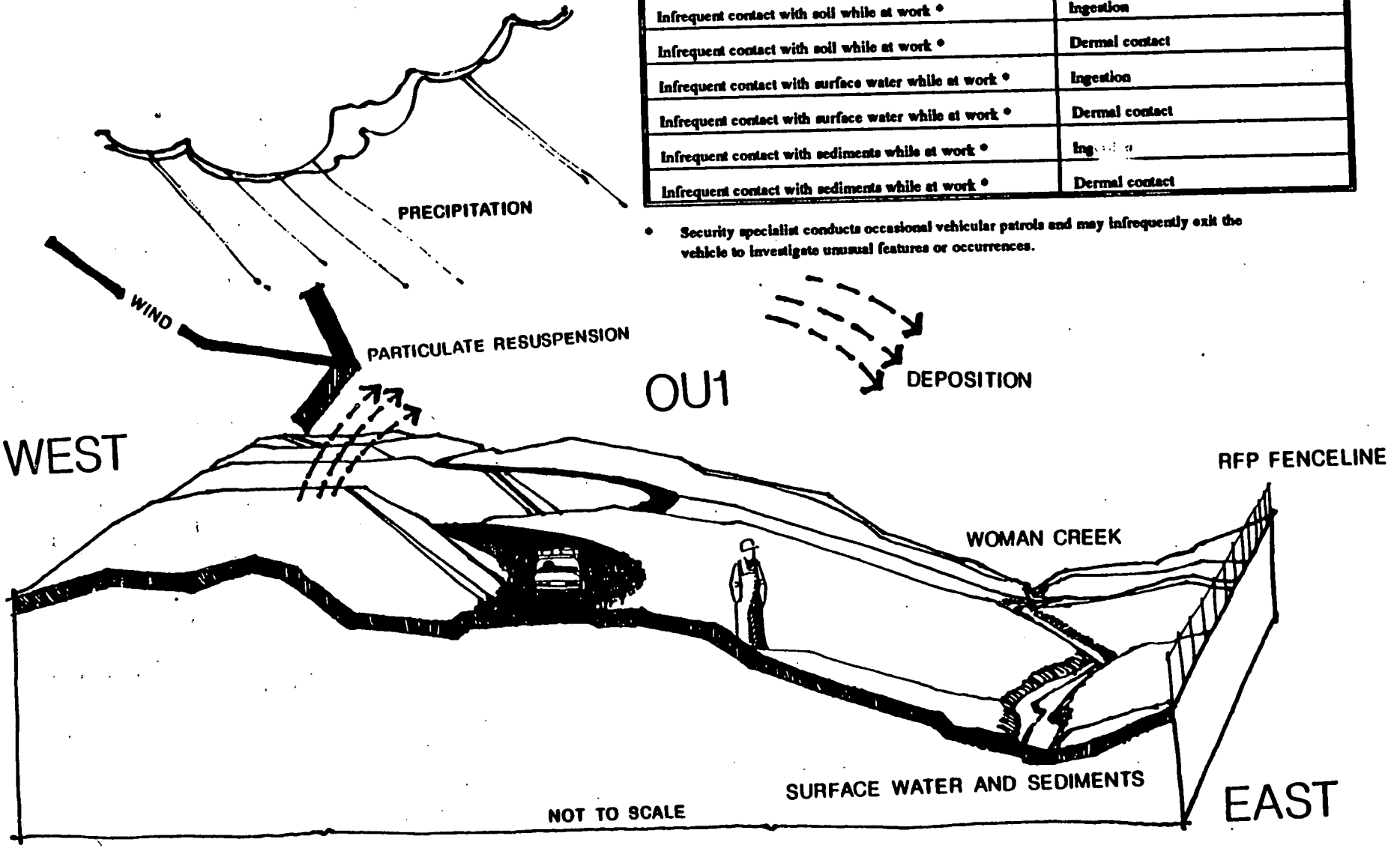


FIGURE 1-7

CURRENT ON-SITE COMMERCIAL/ INDUSTRIAL USE
CURITY SPECIALIST)

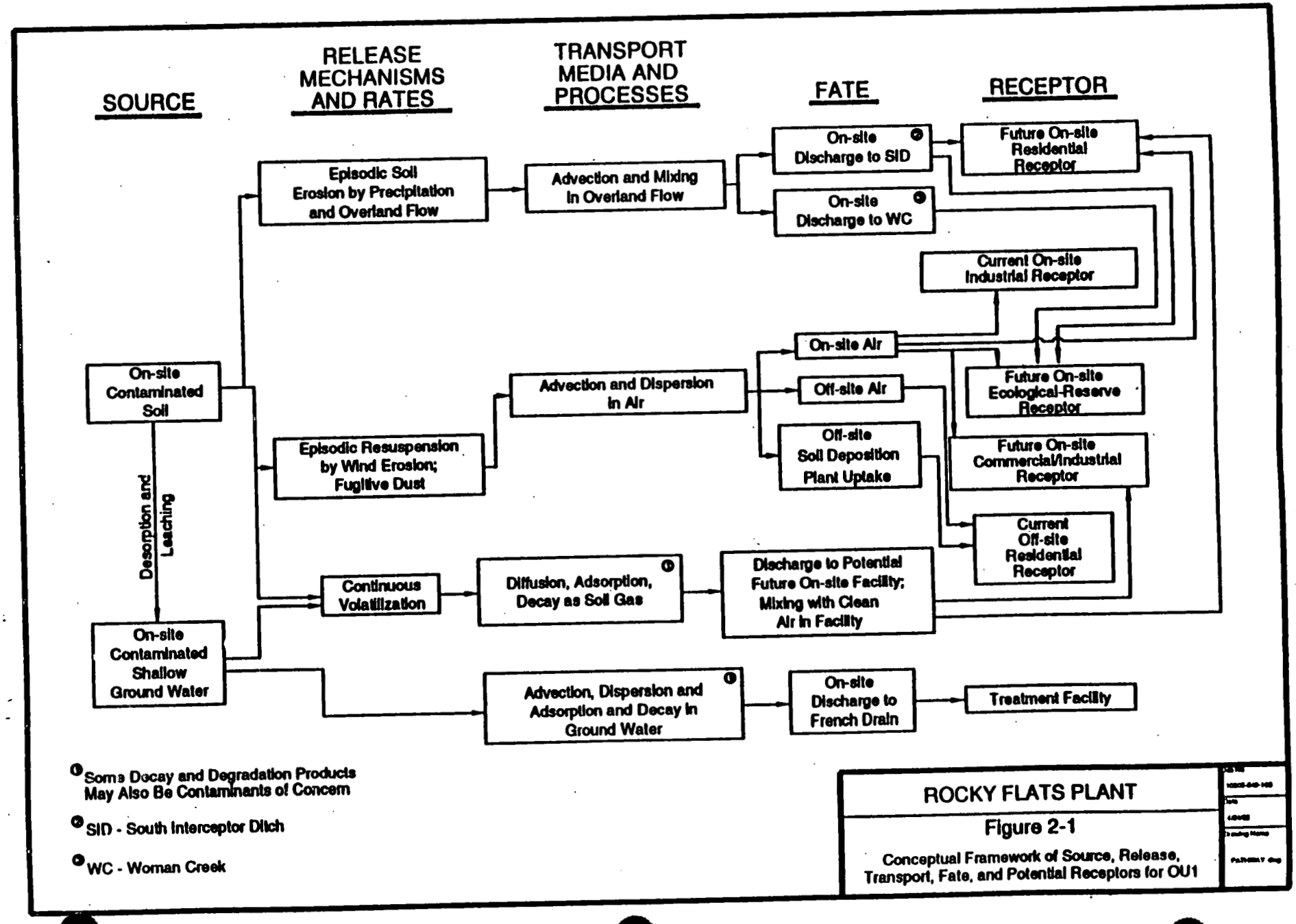
2.0 GENERAL CONCEPTUAL MODEL OF OPERABLE UNIT ONE

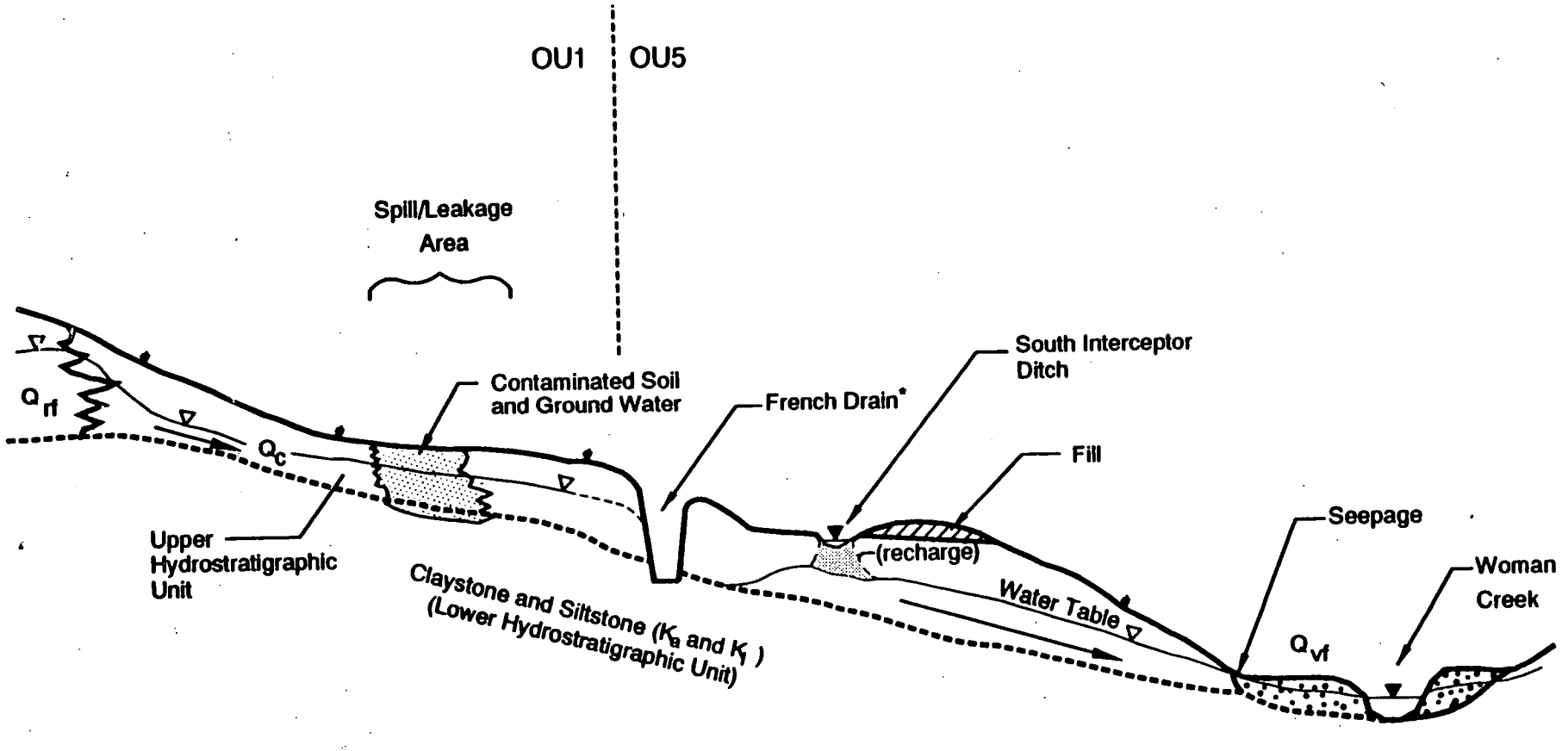
Section 2 provides a qualitative description of the conceptual model for OU1. The conceptual model has three main components: ground water (includes unsaturated and saturated zones), surface water, and air. Each component of this conceptual framework is discussed in detail in the following subsections.

The conceptual model for OU1 is based on data that have been collected at the site as part of Phases I and II of the RI, data that were available from Phase III of the RI as of May 31, 1992, and on data collected during ongoing sampling programs. One of the primary goals of the Phase III investigation was to characterize known or suspected source areas in OU1. Figure 2-1 depicts the sources, release mechanisms and rates, transport processes, and fate of contaminants to be addressed by modeling.

2.1 Saturated and Unsaturated Zones

The models depicted in Figures 2-2 and 2-3 embody the general conceptual model of the OU1 ground-water flow system (including saturated and unsaturated zones) and contamination of ground water and soils with VOCs. The conceptual model of the site is based on field investigations conducted as part of the OU1 RI/FS (Phases I, II, and III) and other related activities (Hurr 1976; Hydro-Search, Inc. 1985; Rockwell International 1988; EG&G 1990a; EG&G 1990b; EG&G 1991a; EG&G 1991b, EG&G 1992b). The conceptual model depicted in Figure 2-2 is not intended to encompass all of the physical and chemical aspects of the ground-water flow system at the site, but it is intended to show the key processes that are known or are suspected to occur at the site. The model shown is generalized to IHSS 119.1 conditions because that is the location of the highest levels of contamination found to date in OU1.


SOURCE
RELEASE MECHANISMS AND RATES
TRANSPORT MEDIA AND PROCESSES
FATE
RECEPTOR
Episodic Soil Erosion by Precipitation and Overland Flow
Advection and Mixing in Overland Flow
On-site Discharge to SID
On-site Discharge to WC
Future On-site Residential Receptor
Current On-site Industrial Receptor
On-site Contaminated Soil
Advection and Dispersion in Air
On-site Air
Off-site Air
Future On-site Ecological-Reserve Receptor
Episodic Resuspension by Wind Erosion; Fugitive Dust
Off-site Soil Deposition Plant Uptake
Future On-site Commercial/Industrial Receptor
Desorption and Leaching
Current Off-site Residential Receptor
Continuous Volatilization
Diffusion, Adsorption, Decay as Soil Gas
Discharge to Potential Future On-site Facility; Mixing with Clean Air in Facility
On-site Contaminated Shallow Ground Water
Advection, Dispersion and Adsorption and Decay in Ground Water
On-site Discharge to French Drain
Treatment Facility
Some Decay and Degradation Products May Also Be Contaminants of Concern
SID - South Interceptor Ditch
WC - Woman Creek
ROCKY FLATS PLANT
Figure 2-1
Conceptual Framework of Source, Release, Transport, Fate, and Potential Receptors for OU1



*French Drain Designed to Capture Shallow Contaminated Ground Water

Not to Scale

Explanation

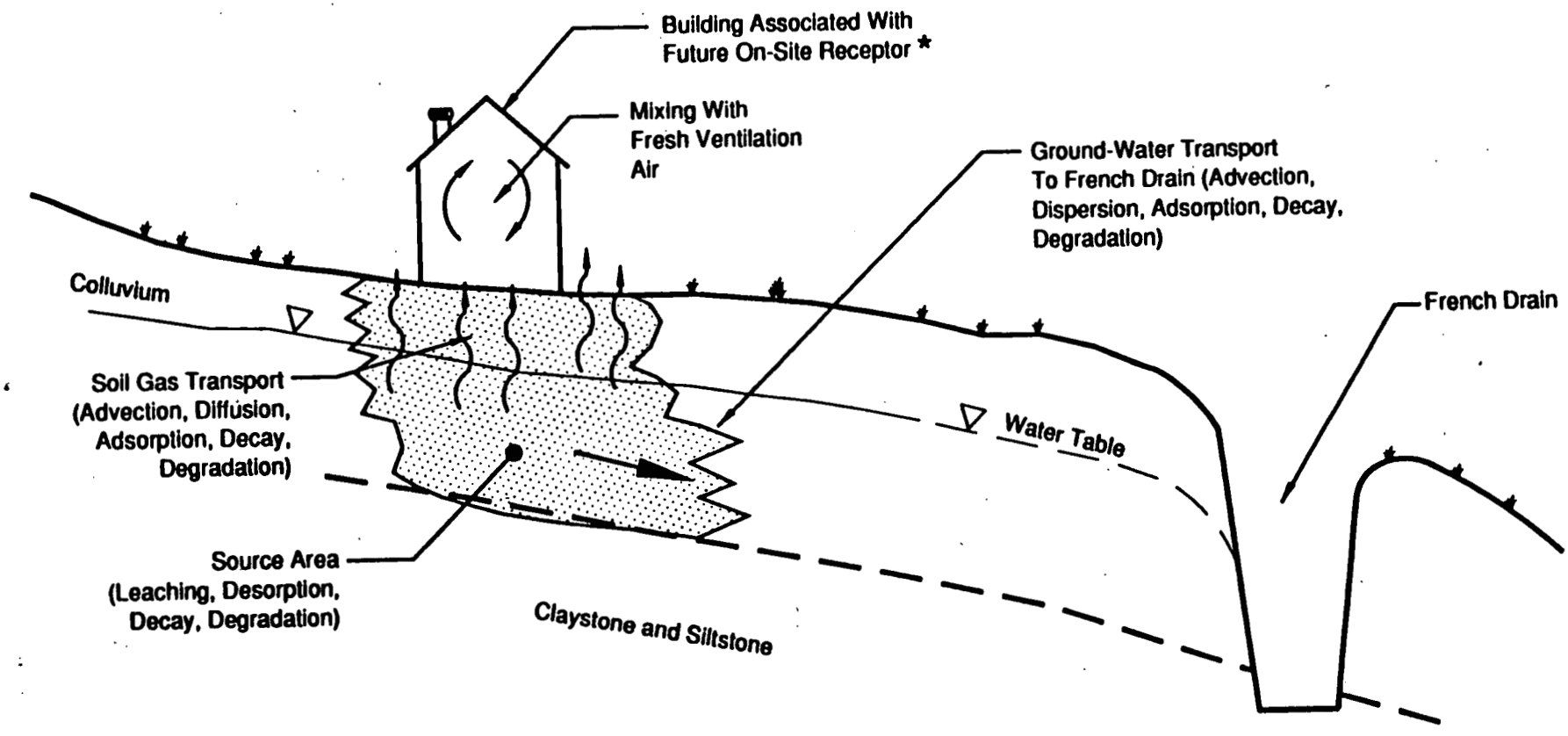
Ground-water Flow

Quaternary Units

Q_{rf} - Rocky Flats Alluvium
Q_c - Colluvium Deposits (Includes Disturbed and Slumped Sediments)
Q_{vf} - Valley Fill Alluvium
K_a - Arapahoe Formation
K_l - Laramie Formation

ROCKY FLATS PLANT

Figure 2-2
OU1 Hydrogeologic Conceptual Model, 881 Hillside Area



* See Section 2.0

ROCKY FLATS PLANT

Figure 2-3
Future OU1 Ground-Water/
Soil Gas Conceptual Model

The conceptual model of flow and transport in the subsurface includes both the unsaturated and saturated zones because of the close interrelationship between these two zones.

Two distinct ground-water flow systems have been identified beneath OU1 (EG&G 1992b). The uppermost unit, referred to as the upper hydrostratigraphic unit (upper HSU), includes the Rocky Flats Alluvium, artificial fill, undisturbed and disturbed/slumped colluvial sediments, and valley-fill alluvium (EG&G 1992b). The lower HSU includes intact bedrock (Arapahoe and Laramie Formations) and disturbed/slumped bedrock.

The majority of contamination discovered beneath OU1 is in the upper HSU (EG&G 1992b). For this reason, modeling activities associated with the Phase III RI/RFI and PHE focus on the upper HSU.

Flow in the upper HSU is primarily to the south towards either the French drain or Woman Creek (Figure 2-2). Flow in this unit is limited by low recharge, the small permeability of the host sediments, and lateral heterogeneity that results from slumping (EG&G 1992b). In the central and eastern portions of OU1, ground water in the upper HSU occurs in discontinuous perched zones (EG&G 1992b). Recharge occurs as infiltration of precipitation, as inflow from the Rocky Flats alluvium at the top of the slope of the hillside, and as leakage from the SID. Discharge is mainly by evapotranspiration, flow into the French drain, and, south of the French drain, flow into Woman Creek. Minor discharge from the upper HSU also occurs as vertical percolation to the lower HSU, although this flow is likely small due to the small hydraulic conductivity of the bedrock.

Hydraulic conductivities of the upper HSU range from 1×10^{-4} to 9×10^{-7} cm/sec (EG&G 1992b) indicative of sandy silt and clay sediments. Lateral discontinuities in this unit are caused by the juxtaposition of larger permeability materials against those of smaller permeability. Flow along slump-related discontinuities in the upper HSU is thought to be

minimal due to: (1) the high clay content and plasticity of the sediments which enhance healing of discontinuities, (2) the occurrence of caliche deposits in discontinuities which result in the plugging and sealing of these features.

The primary route of contaminant migration in and from the upper HSU is by volatilization of VOCs and with subsequent migration as a gas in the unsaturated zone. Contaminant migration in ground water is likely to be captured by the French drain.

Ground-water flow in the lower HSU is generally in a southerly direction and occurs primarily in thin, discontinuous, silty sandstones and siltstones (EG&G 1992b). Hydraulic conductivities in the lower HSU range from 2.3×10^{-3} to 2×10^{-7} cm/sec (EG&G 1991b), with the majority of the materials in the lower range. Recharge to this unit is most likely from ground-water inflow from upgradient, offsite areas. Discharge from the lower HSU occurs as seepage into the upper HSU along the lower portions of the hillside below the SID (especially in the western portion of the site), or to Woman Creek.

The water table (upper HSU) fluctuates due to seasonal variations in recharge and discharge. Water level changes on the order of several feet occur seasonally, with the highest levels occurring during the months of May and June. During this time quantities of precipitation and runoff are high and evapotranspiration is low. The lowest water levels generally occur during late summer, fall, and winter, when recharge is minimal. Many wells completed in the surficial sediments go dry during this time.

The process by which dense chlorinated solvents and other contaminants were introduced into the subsurface is not completely documented; however, it is probable that small leaks and spills occurred at several sites in OU1 over approximately two decades. There is no evidence that a large, short-term spill occurred at the site. Several small, closely spaced, slow leaks or spills would tend to result in relatively vertically homogeneous contamination

of the unsaturated and saturated zones. The depth of contamination would depend on the size and duration of the spills or leaks. The extent of such contamination would be discontinuous depending on the relative distance between spills or leaks. For OU1, the most contaminated zone is within IHSS 119.1 beneath the water table in the Upper HSU. Ground-water sampling has not indicated heterogeneous contaminant distribution within this area.

VOC contaminants in the unsaturated zone beneath the hillside could be mobilized by desorption, dissolution, or vaporization from contaminated soil water. Once mobilized, contaminants would migrate to the surface and escape into the atmosphere by volatilization. The contaminants could also migrate into ground water; however, this water would eventually be captured by the French drain.

The conceptual model depicted in Figures 2-2 and 2-3 does not include all the different contaminant sources that are known to occur at the site such as particulate radioactive contamination in soils. Radioactive contaminants suspected to occur in shallow soils at the site are plutonium, americium, and uranium (EG&G 1991b). Uranium also occurs in ground water at OU1 (EG&G 1991b). Typically, these radionuclides are tightly bound to soil particles, with representative adsorption distribution coefficients for these radionuclides ranging from 35 to 4,500 milliliters per gram (ml/g). In relative terms, these adsorption distribution coefficients translate into retardation factors ranging from 150 to 19,000 indicating that the radionuclides are essentially immobile (assuming a porosity of 39.9 and a bulk density of 1.71 g/cm^3) (Freeze and Cherry 1979, p. 404, equation 9.14, and EG&G 1992b). Therefore, migration of radionuclides through the ground-water pathway (considered to be negligible) was not included in Figure 2-1. Nevertheless, the selected transport models should have the capability to incorporate radioactive decay and sorption of radionuclides.

The colluvial soils beneath the site are relatively homogeneous; however, recent excavation for the French drain has revealed evidence of earth slumps. Characterization of slumping in the area is difficult because the slumps may be old and well-healed, and substantial modification of the land surface has occurred which obscures these features. The degree to which slumps and disturbed ground affect the ground-water flow system beneath the site is not completely known; however, interpretations of data collected thus far indicate that the effects are not asignificant with respect to contaminant migration or effectiveness of the French drain (EG&G 1991a and 1992b; EG&G 1991b; EG&G 1991d).

2.2 Surface Water

Surface water in the area of OU1 flows from west to east and may be found in the SID and Woman Creek, which may potentially convey contaminants into and out of OU1. Pond C-1 (downgradient from OU1; Figure 1-2) receives stream flow from Woman Creek and discharge from Pond C-1 is diverted around Pond C-2 (located east of C-1) back into the Woman Creek channel. Runoff from the southern part of RFP is collected in the SID and discharged to Pond C-2. Water in Pond C-2 is treated and discharged to Woman Creek in accordance with the plant National Pollutant Discharge Elimination System (NPDES) permit (discharge point 007); it is then pumped from the Woman Creek Drainage to the Broomfield Diversion Canal located in the Walnut Creek drainage.

Flow in the SID and Woman Creek is intermittent, appearing and disappearing along various reaches. During the 1986 and 1987 investigations, there was no surface water flow observed in Woman Creek downstream of Pond C-2. The intermittent surface water flow observed in Woman Creek and the SID indicate frequent interaction with the shallow ground-water system. The French drain has been completed, and it is designed to capture shallow ground water moving toward Woman Creek (Figure 2-2).

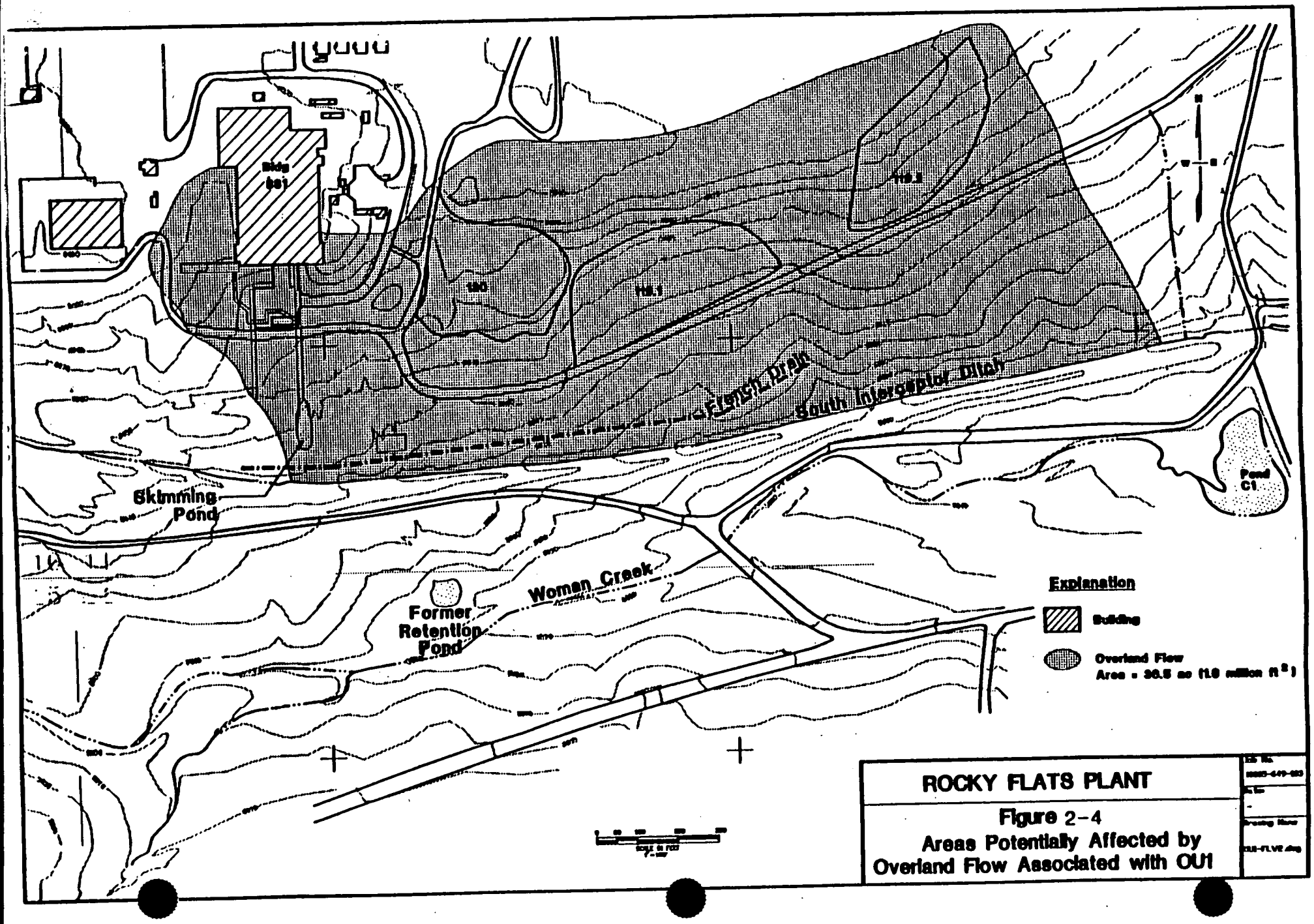
Surface water flow (overland flow) may also occur during periodic precipitation and from roadways and parking lots in the area above OU1. Such flow is not channeled or diverted into storm drains and may therefore potentially affect large areas of the hillside.

Portions of the SID and Woman Creek within OU1 may be subject to waste loads from sources upstream and from nonpoint sources (external to OU1, and associated with OU1). Nonpoint sources are sources of contaminants that are widespread, such as an area of contaminated soil covering 10 or more square feet. Nonpoint source contamination is associated with random precipitation events. Rain or snowmelt could come in contact with a contaminated soil at landsurface located within an IHSS, meaning that portions of the contaminated soils could be transported in overland flow to the SID. Figure 2-4 shows the areas at OU1 above the SID that could potentially be affected by nonpoint source contamination from overland flow.

2.3 Air

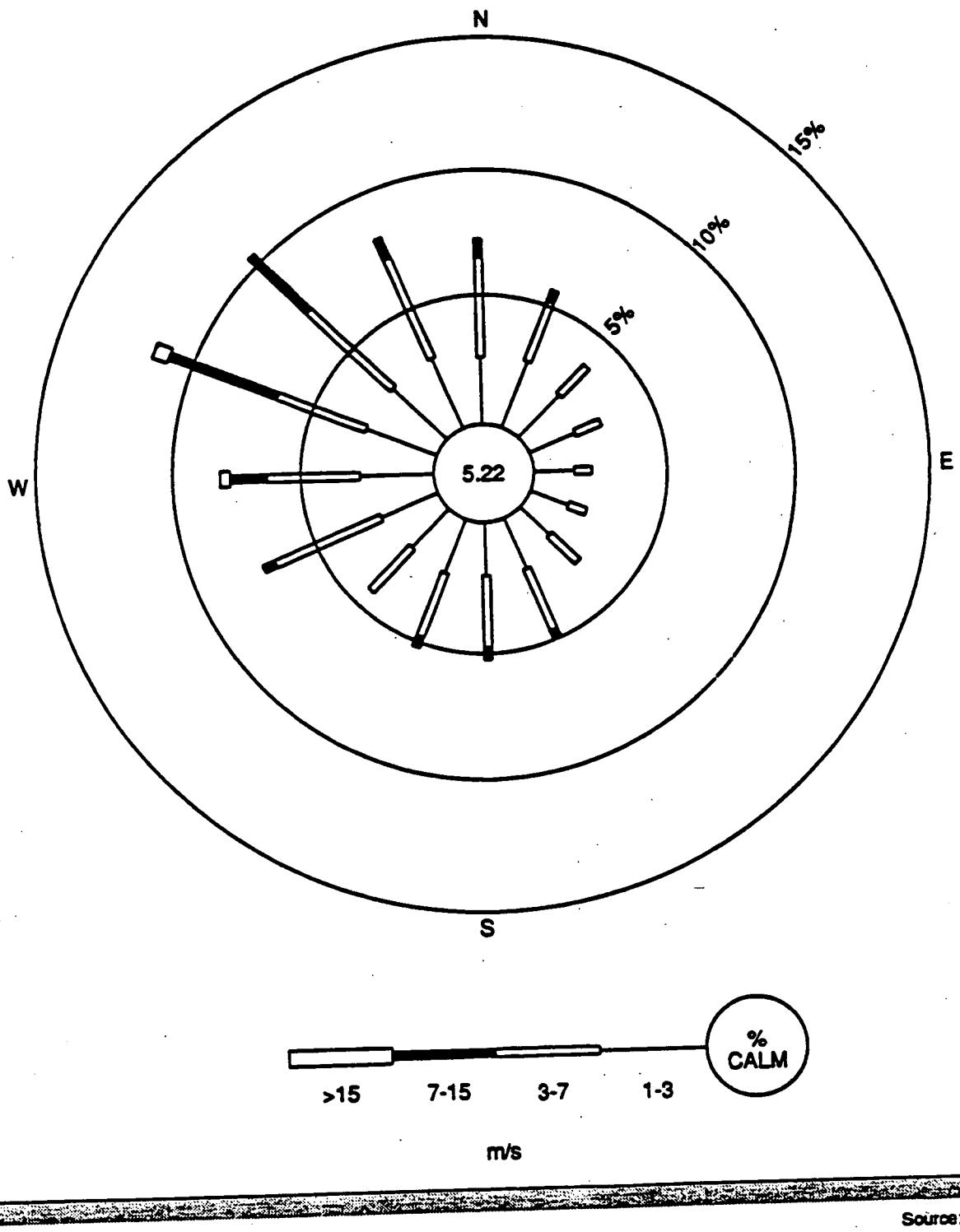
The extent of airborne erosion, transport, and dispersion of contaminants is influenced by the predominant wind patterns, atmospheric stability, and mixing heights over and in the vicinity of the OU1 site.

The general annual wind pattern (EG&G 1991f), illustrated as a wind rose in Figure 2-5, indicates that winds blow from the north through west sectors approximately 45 percent of the year, with wind blowing predominantly toward the east-southeast sector 12 percent of the year. Outside of these sectors, the wind rose components average less than 5 percent per sector. The highest velocity winds blow greater than 15 meters per second (m/s), (i.e., greater than 33.5 miles per hour) and are generally from the west and west-northwest sectors. While lower wind speeds reduce the amount of dispersion (thus increasing the potential concentration of airborne contaminants), the higher velocity winds result in



ROCKY FLATS PLANT

Figure 2-4
Areas Potentially Affected by Overland Flow Associated with OU1



Source: EG&G 1990

ROCKY FLATS PLANT

Figure 2-5
Wind Rose for the Rocky Flats Plant
1989 Annual

significantly higher emission rates of contaminated soils since the erosion rate is a cubic function of wind speed. Although topographical conditions specific to OU1 may cause minor local variations in wind direction, the annual averages for direction and velocity are not expected to be significantly different from those for the entire RFP site. Based on this information, the area most impacted by atmospheric dispersion of airborne contaminants derived from RFP would be the quadrant southeast of RFP.

Atmospheric stability, which affects the degree of plume dispersion, is predominantly neutral (Class D, 50 percent) to stable (Class E and F, 42 percent) (EG&G 1991f). Stable atmospheric conditions tend to reduce the amount of plume dispersion, and thereby increase the concentration of contaminants in the plume, relative to neutral or unstable atmospheric conditions.

Morning and afternoon mixing heights for the Denver area (Holzworth 1972) are an average of 270 m and 2,500 m, respectively, during the year. Lower mixing heights tend to confine plumes more than higher mixing heights, thus increasing the concentration of plume contaminants at the receptor locations. However, these effects are only manifested at greater distances from the release point.

The general topography between OU1 and potential downwind receptors is gently sloping terrain with moderate relief. Hills or valleys will not provide major obstacles or channels to the prevailing airflows. Potential off-site receptors are located at slightly lower elevations relative to the site.

The site is lightly to moderately vegetated, a condition that helps reduce the effects of wind erosion. OU1 is covered by plants representative of tall-grass prairies, short-grass prairies, and foothills regions. The more steeply sloped areas of the hillside are predominantly

covered with grasses, while surface water drainage areas such as Woman Creek are host to grasses, cattails, rushes, and cottonwood trees.

Contaminants such as metals, semi-volatile organics, and radionuclides bound to OU1 soils could be mobilized during periods when winds erode surficial soils. Soil gas that discharges to the atmosphere (if any) (Section 2.1) would be diluted to the extent that outdoor atmospheric concentrations near OU1 and downwind of OU1 is negligible.

3.0 MODEL DESCRIPTION

Section 3 describes the models to be used in characterizing and predicting contaminant concentrations for the OU1 risk assessment. The considerations for selecting models, and objectives and scope of the modeling study, are also discussed.

The term "model" refers to computer codes or a set of equations that can be used to represent site conditions and the transport of contaminants through soil gas, ground water, surface water, and air. The models incorporate site-specific data and interpretations of and estimates derived from site-specific data. The combination of a computer code and site-specific data will be referred to as a "site-specific model."

3.1 Considerations for Model Selection

According to Bond and Hwang (1988) and van der Heijde and Park (1986), the following issues should be considered when selecting models for simulating conditions at a site: (1) the objectives of the project, (2) the physical and chemical conditions of the site, and (3) the requirements for implementing the models. For the OU1 RI, the overall objective of the modeling is to estimate and predict concentrations of contaminants of concern (COC) for risk assessment purposes.

Models selected should be capable of incorporating key contaminant transport and transformation processes and simulating the important domain characteristics and material/fluid properties. The physical and chemical conditions that need to be simulated for each component of OU1 (saturated/unsaturated zones, surface water, and air) are discussed in detail in Sections 3.2, 3.3, 3.4, and 3.5.

Considerations for implementing a model include the following: (1) the availability of the model, (2) the degree and nature of documentation, (3) the extent of peer review of the model, (4) the nature of model verification and testing, and (5) the computer systems on which the model has been used. Verification of a model is defined as the process of verifying that the results of the model are numerically correct and involves an independent check of the calculations performed by the model.

Five general categories were considered in selecting models for use at OU1:

1. The selected model(s) should be able to incorporate key processes known to occur at the site.
2. The selected model(s) should be able to satisfy the objectives of the study.
3. The selected model(s) should be verified using published analytical equations.
4. The selected model(s) should be complete and well documented, and, within reason, available in the public domain.
5. The selected model(s) should be practical and cost-effective in terms of actual application as well as resolution of uncertainty.

These are based on general guidance provided by EPA working groups consisting of nationally-recognized modeling committees (van der Heijde and Park 1986). These categories were used to select models for use in the OU1 RI and PHE (EG&G 1991c).

3.2 Soil Gas Transport

The modeling activity will support and provide input to the risk assessment (PHE) study. The overall soil gas modeling objective is to predict the transport and resulting concentrations of contaminants through the soil gas pathway (Figure 2-4). Such predictions will be formulated to provide the information necessary to perform a baseline risk assessment. Part

of the modeling investigation will be directed at characterizing the geotechnical suitability of OU1 for construction of buildings associated with future receptors.

3.2.1 Model Descriptions - Two analytical models will characterize contaminant transport as soil gas and predict contaminant concentrations in structures associated with the potential future on-site commercial/industrial receptor. The selection of these models was based on the considerations discussed in Section 3.1.

One of the primary goals of the Phase III investigation was to characterize known or suspected source areas in OU1. At the time this model description report was prepared, most of the data from the Phase III investigation were available, and generally indicated that the contamination is located in the saturated zone. However, in the event that remaining data might suggest contamination in the unsaturated zone, two different soil gas transport models have been selected to cover both contingencies.

The first model, developed by Jury, Spencer and Farmer (1983), referenced hereafter as the Jury model, is a one-dimensional, analytical solution of the advection-dispersion equation. The Jury model is applicable to areas of the unsaturated zone that are uniformly contaminated. The Jury model incorporates adsorption, decay, and transport in the soil gas phase and in water in the unsaturated zone. The Jury model's equation for contaminant mass-flux at the top of a contaminated zone is:

$$J_s(0,t) = \frac{1}{2}C_0 e^{-\mu t}\left[V\left\{\operatorname{erfc}\left[\frac{Vt}{\sqrt{4Dt}}\right] - \operatorname{erfc}\left[\frac{(L + Vt)}{\sqrt{4Dt}}\right]\right\} + (2H + V)e^{(H(H + V)t/D)}\left\{e^{(HL/D)}\operatorname{erfc}\left[\frac{(L + (2H + V)t)}{\sqrt{4Dt}}\right] - \operatorname{erfc}\left[\frac{(2H + V)t}{\sqrt{4Dt}}\right]\right\}\right] \quad (1)$$

where

J_o = contaminant mass flow per soil area per time ($M/L^2/T$) at the top of the contaminated zone and some time, t

C_0 = initial, uniformly distributed contaminant concentration at time 0 (M/L^3)

u = decay rate ($1/T$)

t = time (T)

V = retarded advective velocity of a contaminant in liquid soil water (L/T)

D = retarded diffusion coefficient of a contaminant in soil vapor and liquid soil water (L^2/T)

L = vertical length over which contaminated soil exists (L)

H = retarded transport coefficient across a stagnant air layer at the top of the contaminated zone of a specified thickness (L/T)

erfc = complementary error function

Assumptions and limitations inherent in the Jury model include the following:

- Homogeneous porous media -- Transport distances in the unsaturated zone beneath OU1 are likely to be short, and changes in the properties of subsurface soils probably do not vary significantly over short distances; therefore, the impact of heterogeneity on soil gas transport is not likely to be significant.

- Linear equilibrium sorption -- Adsorption and desorption are assumed to be linear, rapid and reversible. This assumption can be used to provide conservative estimates of the impact of adsorption (for the purposes of risk assessment).

- Linear equilibrium liquid-gas partitioning -- The Jury model assumes that Henry's law applies to partitioning (volatilization) between the liquid and gas phases. Henry's law applies to situations in which contaminant concentrations in water are relatively small. This is the case at OU1, according to Phase II data. Henry's law does not apply to concentrated solutions or to volatilization from a pure phase of contaminant.

- Volatilization at the soil surface is controlled by stagnant-air boundary layer - The model does not apply to situations in which there is air flow immediately above the soil surface. Air flow must allow a stagnation layer to exist above the soil surface (interior of a structure).

- Uniform distribution of contaminant in unsaturated soil with a constant thickness - The model does not apply to discontinuous or heterogeneously contaminated zones; however, this assumption can be used to provide conservative estimates. The Jury model is only applicable to the unsaturated zone.

- Advection by a steady water flux – The model assumes that evapotranspiration and ground water recharge are constant. In reality, evapotranspiration and recharge vary according to season, but will tend toward a constant average.

- Infinite depth of uniform soil below the depth of incorporation – The model assumes that gas and liquid flow are uniform and vertically oriented. This implies an infinite source and that edge effects are minimal. The assumption is conservative.

The Jury model does not apply to the volatilization of organic compounds from contaminated water in the saturated zone. For such cases, the model of Johnson and Ettinger (1991), referenced hereafter as the Johnson model, can be used, which employs the following equation:

$$E = \frac{A(C_v - C_{soil})D}{L_{soil}} \qquad (2)$$

where

E = contaminant transport rate (M/T) through some cross-sectional area, A

A = cross-sectional area (L^2)

C_v = contaminant concentration in soil gas due to volatilization from contaminated ground water (M/L^3)

C_{soil} = contaminant concentration in soil near the point at which E is to be estimated (M/L^3)

D = retarded diffusion coefficient of a contaminant in soil vapor (L^2/T)

L_{soil} = vertical distance between contaminated ground water and the point at which E is to be estimated (L)

This equation is a one-dimensional expression of Fick's first law.

In the above equation, C_v is related to the concentration of a contaminant in ground water through Henry's law:

$$C_v = C_w K_h \quad (3)$$

where

C_w = contaminant concentration in ground water (M/L^3)

K_h = Henry's law constant (-).

It should be noted that for both the Johnson and Jury models, Henry's law constants and adsorption distribution coefficients (K_d) are contaminant specific.

Equation 2 describes the diffusion of contaminants from the source to a location near the base of a structure (basement floor or floor slab). Darcy's law, modified for gas flow across a permeable structure wall, can be used to estimate the flow of gas (air + contaminant) through the wall of a structure:

$$Q_{soil} = -\frac{k_v A}{u}\frac{dP}{dZ} \quad (4)$$

where

Q_{soil} = volumetric flow of soil gas into the structure (L^3/T),

k_v = intrinsic permeability of soil (L^2),

u = viscosity of the gas (M/LT),

dP = pressure differential across wall of structure (L), and

dZ = thickness of wall (L).

Once gas enters a building, a simple mixing calculation will be applied to estimate the impact of ventilation of the building on contaminant concentrations within the structure. The

following equation from the Johnson model will be used to compute the contaminant concentration in the mixture:

$$C_{mix} = \frac{Q_{soil}C_{soil} + Q_bC_b}{Q_{soil} + Q_b} \quad (5)$$

where

C_{mix} = resulting concentration in mixture (M/L^3),

Q_{soil} = flow rate of soil vapor into the building (L^3/T),

C_{soil} = contaminant concentration in soil vapor near the building structure (M/L^3),

Q_b = ventilation flow rate within building (L^3/T), and

C_b = contaminant concentration in fresh, ventilation air (M/L^3) (assumed to be zero).

This set of equations (2 through 5) will hereafter be referred to as the Johnson model.

The assumptions and limitations inherent in the Johnson model include the following:

- Transport of gas in the unsaturated zone is only by diffusion - The model does not account for advection of contaminants in the unsaturated zone. Pressure differentials associated with air (or gas) in the unsaturated zone are typically zero because air pressures are usually equivalent to ambient atmospheric pressures; therefore, there is no driving force for advective gas transport in the unsaturated zone.

- Source of contaminant gas is uniform and infinite - The Johnson model assumes that the source of contaminant gas is large enough to provide an "infinite source." The model also assumes that the source is located directly below the floor of the structure and that all gases that diffuse upward beneath the structure eventually enter the structure.

- Structure has permeable walls - It is assumed that the structure has uniformly permeable walls without cracks or holes. This assumption is conservative in that fractures form the primary permeability of most concrete structures.

- Advection occurs through structure walls - It is assumed that gases are transported through walls into a structure by advection. The model does not account for diffusion through structure walls. Pressure differentials through the walls of a structure resulting from temperature differences and ventilation drive advective transport near the foundation of a structure.

- Homogeneous porous media - Transport distances in the unsaturated zone beneath OU1 are likely to be short, and changes in the properties of subsurface soils probably do not vary significantly over short distances; therefore, the impact of heterogeneity on soil gas transport is not likely to be significant. In addition, this assumption can be used to provide conservative estimates.

- Linear equilibrium sorption - Adsorption and desorption are assumed to be linear, rapid, and reversible. For the purposes of risk assessment, this is a conservative assumption.

- Linear equilibrium liquid-gas partitioning - The Jury model assumes that Henry's law applies to partitioning (volatilization) between the liquid and gas phases. Henry's law applies to situations in which contaminant concentrations in water are relatively small. This is the case at OU1, according to Phase II data. Henry's law does not apply to concentrated solutions or to volatilization from a pure phase of contaminant.

- Uniform distribution of contaminant in ground water - The model does not apply to discontinuous or heterogeneously contaminated zones. For OU1, contamination in the saturated zone is probably fairly uniform (Section 2.1).

These two soil gas transport models will be used to simulate the migration of contaminants from the subsurface into potential on-site structures associated with the potential future on-site commercial/industrial receptor. These models can also be used to assess the long term rate at which subsurface contaminant sources will diminish over time.

3.2.2 Data Summary for Soil Gas Modeling - A summary of the data available to conduct the soil gas modeling is provided in Table 3-1. Most data required for soil gas modeling have been collected at OU1 or other locations at RFP; however, much of the data presented in Table 3-1 is based on data collected during the Phase I, II, and III characterizations. The

TABLE 3-1
DATA SUMMARY FOR SOIL GAS MODELING

Parameter	Units	Range[a]	Source
Properties of Colluvium/Alluvium			
Porosity[b]	%	31.5 - 45.3	Phase III Draft RFI/RI Report[b]
Bulk Density	kg/m^3	1,830 - 1,540	FD Report[c]
Fraction of Organic Carbon	%	0.001 - 2.3	Phase III Draft RFI/RI Report[b,d]
Water Content	% dry weight	6.8 - 8.3	FD Report[c]
Hydraulic Conductivity	cm/sec	9×10^{-7} - 1×10^{-4}	Phase III Draft RFI/RI Report[d]
Intrinsic Permeability	cm^2	8.23×10^{-12} - 9.14×10^{-4}	Phase III Work RFI/RI Report[a]
Environmental Properties			
Relative Humidity	%	50 - 36	Koffer[e]
Evapotranspiration Rate	m/day	5.59×10^{-3} - 6.71×10^{-4}	Koffer[e]
On-Site Building Characteristics			
Building Under- Pressurization	g·m^2/s^2	1 - 300	Johnson[f]
Ventilation Rate	cm^3/s	2800	United Nations[g]
Properties for Tetrachloroethylene (PCE)			
Ground-Water Concentration	µg/L	ND[h] - 5,700	Phase III Draft RFI/RI Report[b]
Mass of Contaminant in Soil or Ground Water	g/m^3	—	Phase III RI/FS (unavailable)
Area of Contamination (within IHSS)	m^2	—	Phase III RI/FS (unavailable)
Saturated Vapor Density	g/m^3	6,780[i]	Montgomery and Welkom[j]
Solubility	g/m^3	150 - 400	Montgomery and Welkom[j] Verschueren[k]

TABLE 3-1 (cont'd)
DATA SUMMARY FOR SOIL GAS MODELING

Parameter	Units	Range[a]	Source
Henry's Law Constant	—	0.117 - 0.625	Montgomery and Welkom[j]
Adsorption Distribution Coefficient (Saturated Zone)	m^3/kg	0.133 - 0.425	Phase III Draft RFI/RI Report[b]
Biodegradation Rate	day^{-1}	—	—
Molecular Diffusion Coefficient in Air	cm^2/sec	7.60×10^{-2}	Lyman[l]
Molecular Diffusion Coefficient in Water	cm^2/sec	8.69×10^{-6}	Lyman[l]

[a] Range of observed values, typically from Phase I, II, and III reports
[b] EG&G (1992b)
[c] EG&G (1991d)
[d] Interpreted from Hydraulic Conductivities presented in the Phase III Draft RFI/FS Report (EG&G 1992b) and known properties of pure water.
[e] Koffer (1989).
[f] Johnson and Ettinger (1991).
[g] Interpreted from typical dimensions of a house given by the United Nations (1988).
[h] unitless, not detected, no data, or no information source.
[i] Only one value obtained from Montgomery and Welkom (1990).
[j] Montgomery and Welkom (1990).
[k] Verschueren (1983).
[l] Lyman et al. (1982); calculated using the FSG method (Lyman et al. 1982). Note that the diffusion coefficients depend on both material and fluid properties.

interim 1990/91 chemical data set (unpublished) provides additional data on potentialcontaminants and their concentrations. These data will be used to select the subset of COCs for modeling.

Many of the parameters listed in Table 3-1 should not be regarded as site specific at this time. In particular, those parameters associated with PCE (tetrachloroethylene) are not site specific. Each COC will have its own set of such parameters. Site-specific parameters for each COC will be developed after the COC list is finalized. The data summary for PCE is included as an example of data requirements and availability for a typical contaminant.

As stated in Section 1.2, this Technical Memorandum is not intended to describe the methods by which the modeling will be performed. A description of the methods to be used in applying the models will be described in detail in the Phase III RI and PHE reports.

3.3 Ground Water Transport

For the OU1, the construction and operation of the French drain simplifies the ground water flow system beneath the site by reducing ground water travel times and distances. Ground-water modeling will not be performed because the ground-water pathway has not been associated with any potential receptors (Figure 2-1).

3.4 Surface Water

The purpose of the surface water transport modeling is to estimate the potential concentration of contaminants in the SID caused by future erosion of surface soils in OU1. This modeling will also be used to support evaluations of the SID. Sediment within the SID was sampled and chemical analysis performed as part of the Phase I and Phase II RI (Rockwell

International 1988). These data are probably indicative of contamination from the 903 Pad Area (EG&G 1991b).

The potential for future transport of contaminants from OU1 by surface water erosion can be evaluated using empirical mathematical models. Because of the dispersed nature of drainage patterns associated with overland flow, nonpoint sources associated with overland flow are very difficult to monitor using conventional methods. Since monitoring of nonpoint sources is often unfeasible, procedures have been developed and tested to calculate nonpoint source loads (EPA 1985). Nonpoint source models consist of equations to predict surface water runoff supplemented with methods to calculate sediment movement. Combined, the two components describe contaminant transport associated with overland flow and nonpoint sources. The equations describe total contaminant concentrations in overland flow (dissolved, adsorbed and solid components), and total contaminant mass loading to the SID.

In the case of OU1, surficial erosion by overland flow is a potential source for contaminants in the SID. Other sources include upstream sources and deposition from the atmosphere.

3.4.1 Model Description - Based on the above considerations and those outlined in Section 3.1, a set of equations has been selected for estimating nonpoint source loading from OU1. The first equation is known as the USLE. This empirical equation was developed to predict soil loss due to sheet and rill surface water flow (overland flow) (Wischmeier and Smith 1978). The USLE has been evaluated for a wide range of conditions and contaminants that are transported on eroded soil (EPA 1985). The USLE equation is:

$$A = RKLC \qquad (6)$$

where

A = site-specific rate of soil loss ($M/L^2/T$)

R = rainfall/runoff erosivity factor (-)

K = soil erodibility factor (-)

L = length-slope factor (-)

C = cover/management factor (-)

The soil loss per unit area, A, may be computed for a single storm or on an annual average basis. For OU1, the USLE will be used to estimate the long-term (annual) average soil loss rate. This time period is considered representative of average erosion rates for the site.

The rainfall factor, R, is a measure of the erosive energy of a storm. R is given by the equation:

$$R = \frac{EI_{30}}{100} \tag{7}$$

where

E = Total kinetic energy (E) of a storm (LM/L^2), and

I_{30} = Maximum 30 minute intensity of the storm (L/T).

An approximation of the average annual R factor uses the 2-year, 6-hour storm (Barfield et al. 1981).

The soil erodibility factor, K, is an experimentally derived coefficient for a specified soil. K is measured on a unit plot of soil defined as 72.6 ft in length and having a 9 percent slope gradient in uniformly smoothly tilled plot of soil. For situations where experimental plot data are not available, a nomograph can be used that utilizes soil structure, textural parameters, and percent organic matter (Barfield et al. 1981). The USDA Soil Conservation Service (SCS) has developed K values as a function of soil texture in the vicinity of OU1 (Price and Amen 1983).

The length-slope factor, L, is the ratio of soil loss from the average field length and slope to that from a 72.6 ft long, 9 percent slope under otherwise identical conditions. It is defined as the distance from the point of origin of overland flow to the point that the slope decreases such that deposition occurs or until the flow enters a defined channel. Wichmeier and Smith (1978) proposed that the L factor could be given by:

$$L = (0.045x)^b (65.41\sin^2(\theta) + 4.56\sin(\theta) + 0.065) \quad (8)$$

where

- x = slope length (L, meters)
- θ = slope inclination in degrees
- b = 0.2 - 0.5, depending on x (-)

This equation is valid for $x \leq 100$ m and $\theta \leq 10.2$ degrees (Wichmeier and Smith 1978). Using this equation and various values for the parameters, a nomograph for L has been developed by the SCS.

The cover/management factor, C, is the ratio of soil loss from an area with specified cover and management to that from an identical area in tilled, continuous fallow. This factor adjusts the estimated surface soil losses to account for the effects of vegetation, residues, modifications to soil surfaces (grading, terracing, etc.), and management factors (such as roads or contouring of slopes).

To account for mixing of uncontaminated and contaminated soils in the SID, the following equation can be applied:

$$C_s = C_c \left[\frac{A_c}{A_c + A_n} \right] \quad (9)$$

where

C_s = concentration of contaminant in soil entering the SID (M/M of soil)

C_c = concentration of contaminated (source) soil (M/M of soil)

A_c = surface area of source soil (L^2)

A_s = surface area of clean soil (L^2)

Total contaminant-mass loading to the SID can be estimated using the rate obtained from the USLE by:

$$M_s = AA_cC_c \tag{10}$$

where

M_s = Mass of contaminant loading to SID per unit time (M/T)

Equations 6 through 10 will be used to estimate contaminant loadings and concentrations in the SID. The assumptions and limitations inherent in these equations include the following:

- Homogeneous soil properties - The methodology described in this section cannot be used to account for heterogeneous soil conditions (includes soil type and erodibility). This assumption can be used to provide conservative estimates.
- Homogeneous cover/management conditions - The assumption can be used to provide conservative estimates.
- Uniform slopes - The methodology described in this section assumes that slopes have uniform inclination and lengths. Topographic maps of OU1 do not indicate drastic changes in slopes.
- Uniform storm events - The methodology described in this section assumes that storms are uniform in intensity, duration, and areal extent. The small size of the hillside suggests that this assumption is appropriate.

3.4.2 Data Summary for Surface-Water Modeling - A summary of the data available for conducting surface water modeling is provided in Table 3-2. Sufficient data required for this

TABLE 3-2
DATA SUMMARY FOR SURFACE-WATER MODELING

Parameter	Units	Range[a]	Source
Extent of 881 Hillside that Affects SID (Figure 2-4)	m^2	147,700	Phase III Work Plan[b]
Extent of Contaminated Soils	m^2	—[c]	Phase III RFI/ RI data
Contaminant Concentrations in OU-1 Soils	mg/kg	—	Phase III RFI/ RI data
Soil Erodibility Factor	—	0.28 - 0.43	SCS Soil Survey[d]
Cover/Management Factor	—	0.01 - 0.36	Phase III Work Plan; SCS Soil Survey
Length-Slope Factor	—	0.6-8.0	Barfield et al.[e]
Rainfall Factor	—	20-100	Site-Wide Climate Data[f]

[a] Range of observed values, typically from Phase I, II, and III reports. of other OU-1 investigations.
[b] EG&G (1991b).
[c] unitless, not detected or no data available.
[d] Price and Amen (1983).
[e] Barfield et al. (1981).
[f] Unpublished.

modeling have been collected at OU1 or other locations at RFP. In addition to the Phase III data, the unpublished data set collected during 1990 and 1991 provides a suite of potential contaminants and their concentrations. These data will be used to select the subset of COCs to be modeled.

Contaminant concentrations and areal extent of source areas will be estimated when the COCs for OU1 have been finalized. Furthermore, each COC may be associated with a specific area.

The ranges of data values presented in Table 3-2 are not intended to be fixed upper and lower limits on the possible values to be used in the modeling effort. The ranges presented convey what is known of the variability in parameter values and possible limits on values to be used in the models.

As stated in Section 1.2, this report is not intended to describe the methods by which the modeling will be performed. The methods to be used in applying the models will be described in detail in the Phase III RI and PHE reports.

3.5 Atmospheric Transport

The objective of the proposed air modeling is to provide estimates of emissions, dispersion, surface deposition, and fate of contaminants released from OU1. Based on these actions, an exposure assessment for airborne pollutants can be developed. The scope of this effort includes modeling both near-field (on-site) and far-field (off-site) scenarios. Far-field models are more complex and include most of the requirements of near-field models, with the addition of transport, dispersion and deposition of contaminants; therefore, only far-field models are discussed in the following sections.

The major issues to be addressed in modeling exposure pathways from OU1 emissions include the following:

- Source and extent of contamination at OU1
- Release mechanisms from the contaminated area (e.g., wind erosion of contaminated particulates from the soil surface; migration and volatilization of subsurface VOCs)
- Transport (atmospheric dispersion, particulate deposition and plume depletion) of contaminants from emission point to receptor location
- Airborne concentration, deposition, resuspension and long-term accumulation of contaminants at the exposure point
- Receptor exposures routes

These issues are presented schematically as conceptual pathways in Figure 3-1 and discussed in detail in Section 3.5.1.

The models used will be capable of simulating conditions at the source, transport from source and receptor locations, and conditions at the receptor location.

Conditions at the source requiring simulation include the following:

- Emission state (i.e., gaseous or particulate)
- Emission characteristics (i.e., decay, concentration, and instantaneous, continuous or variable rate of pollutant emission)
- Source type (i.e, ground-level area source)

Conditions between the source and the receptor (intermediate zone) are the most important factors affecting receptor concentrations. This component of the model is the most susceptible to error. The site characteristics requiring simulation include the following:

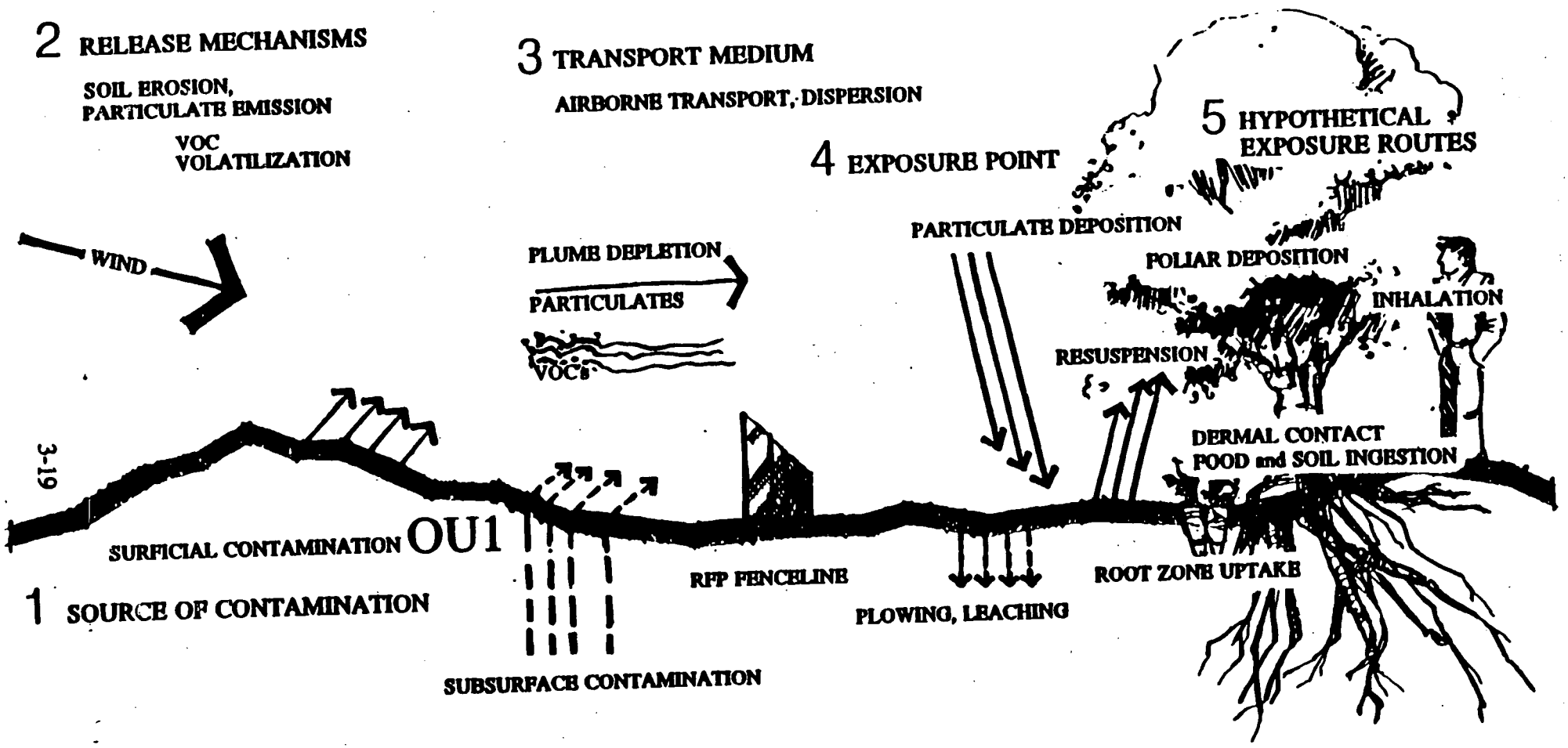


FIGURE 3-1 CONCEPTUAL MODEL FOR AIRBORNE CONTAMINANT EMISSION, EXPOSURE PATHWAYS AND FATE

- Meteorological conditions (i.e., wind speed and direction, stability, mixing depth, and variations of these parameters with time)
- Dispersion assumptions (i.e., Gaussian)
- Special conditions (i.e., deposition, chemical transformation, buoyancy, or aerodynamic downwash)
- Time domain (i.e., short-term such as hourly or daily, or long-term simulations)
- Terrain characteristics (i.e., flat, rolling, or complex topography)

The following conditions at the receptor location must also be adequately represented by the model:

- Height (i.e., ground level receptor)
- Location (i.e., distance and direction of receptor)
- Exposure pathways (i.e., inhalation, ingestion, and/or external exposure dose factors; environmental transfer factors)
- Occupancy factors (i.e., continuous or part-time, shielding factors)
- Consumption or usage (i.e., inhaled volume, quantity ingested)

3.5.1 Model Descriptions - Several air dispersion models were reviewed to determine their applicability to conditions at OU1. These included the computer codes ISCLT, AIRDOS-EPA, FDM, and MILDOS-AREA. Of these codes, MILDOS-AREA was selected for reasons detailed below.

The MILDOS-AREA code (Yuan et al. 1989) will be used to model emissions from the source, transport in air, and deposition at the receptor locations of contaminants originating from OU1. This code has been used extensively by the U.S. Nuclear Regulatory

Commission to assess impacts to the public of aeolic (wind) erosion of particulates and radon from uranium mill tailings piles. The results of the code compare favorably to the results obtained in similar cases using AIRDOS-EPA. Due to limitations in the type of contaminants MILDOS-AREA can handle, it will be used only to determine contaminant *concentrations* at the receptor location. Once the concentrations at the receptor locations are calculated, near-field models will apply. The plant uptake (root and foliar) models contained in the RESRAD code (Gilbert et al. 1989), coupled with the consumption and occupancy factors established in Technical Memorandum No. 6 (DOE 1992), will be applied using the output of the MILDOS-AREA code. Once the intake of contaminants has been estimated, the potential health effects will be calculated using potency slope factors for carcinogens and reference doses for noncarcinogens. The use of these models is described in more detail below.

Most emissions from OU-1 will result from wind erosion of the contaminated soil and will be in the form of airborne particulates of various dimensions. Most wind erosion particulate emission models are cubic functions of average wind speed and consider vegetated cover fractions, threshold wind speeds, and surface roughness. The MILDOS-AREA code incorporates particulate emission models coupled to the joint frequency distributions of wind speed, direction, and stability. The algorithm in MILDOS-AREA was developed for emissions from uranium mill tailings and allows the user to input the anticipated particle size distribution. The code also allows the input of constant emission rates and can handle a number of sources simultaneously (not necessarily collocated). In addition, MILDOS-AREA allows the input of gaseous contaminants (e.g., radon gas). Due to the original purpose of the code, MILDOS-AREA assumes unvegetated surfaces (i.e., uncovered mill tailings piles); therefore, a correction factor to account for the vegetated fraction of land surface will be applied to the results (1-V, where V is the fraction of soil covered by vegetation). This correction will provide a more realistic estimate of actual emissions (Cowherd et. al 1984).

Emissions from OU1 will occur over a relatively long time frame. Therefore, MILDOS-AREA, which is a long-term dispersion model using annual average meteorology, is the most appropriate for use at the site. The transport section of the code consists of the standard Gaussian model (as found in most airborne dispersion codes, including ISC, FDM and AIRDOS-EPA), and can adequately treat long-term dispersion from OU-1. In addition, the algorithm coupling wind-dependent particulate emissions with particulate dispersion is particularly advantageous since it reduces the amount of input required and provides a more realistic description of an actual physical phenomenon. MILDOS-AREA treats irregularly shaped contaminated areas with different contaminant soil concentrations by using finite element integration and/or multiple area sources. Also, MILDOS-AREA allows the user to enter the receptor elevation relative to the release point, thus providing a simple treatment to differences in elevation between source and receptor which are valid so long as no major obstructions are encountered in between.

Since emissions from OU1 may occur over many years, it is important that the model selected be capable of computing the long-term integrated deposition/depletion of contaminants at the receptor location as well as resuspension of previously deposited contamination. The model must also be capable of calculating the different deposition and plume depletion rates for each particle size class. Different time steps can be input to MILDOS-AREA, which then computes the long-term accumulation and resuspension of contaminants at the receptor location. In addition, the code is capable of computing the deposition rates of each particle-size class individually (for nonreactive gaseous compounds, this deposition rate is zero).

Once the airborne contaminants have been transported to and deposited at the receptor location, potential human exposure to these contaminants occurs primarily through inhalation, ingestion, and external exposure pathways. MILDOS-AREA is capable of calculating radiological impacts to individuals through inhalation, ingestion, and external exposure. The

current capabilities of the code are limited to natural uranium and its daughters. Therefore, exposure to individuals at risk will be calculated by multiplying the concentrations in air and soil obtained with MILDOS-AREA (other contaminants scaled to uranium-238 concentrations) by contaminant- and pathway-specific environmental transport factors (Gilbert et al. 1989). Soil contamination input as picoCuries per gram can be converted to micrograms per gram or milligrams per gram for non-radionuclides by interpreting output concentrations in units of micrograms or milligrams, respectively, per cubic meter (in air) or per square meter (on surface) at the receptor location.

Contaminant concentrations in vegetation may be affected by root zone uptake and by foliar deposition. In modeling root-zone uptake by vegetation, a root zone of 90 cm will be assumed, and the surface concentrations will be redistributed in the top 15 cm of the soil layer by assuming the soil is plowed (Gilbert et al. 1989). In addition to the root-zone model, the foliar deposition model in Gilbert et al. (1989) will be used. Used together, the models will allow contaminant concentrations in vegetation to be estimated.

The concentrations in air, soil, and food will then be multiplied by consumption/occupancy factors outlined in Technical Memorandum No. 6 (DOE 1992). This will be accomplished in a spreadsheet format for each airborne contaminant. The risk from direct or indirect contact with airborne contaminants will be estimated using the methodology described in the Risk Assessment Guidance for Superfund (RAGS).

The assumptions and limitations inherent in MILDOS-AREA include the following:

- Homogeneous surface soil contaminant concentrations - While MILDOS-AREA is capable of modeling a number of sub-areas with different soil concentrations, such divisions require significantly more time to implement. At distances greater than 10 times the largest dimensions of the site, use of a weighted average concentration will result in the same concentrations at the receptor locations as would the use of subareas with different concentrations.

- Gaussian Dispersion - All the limitations inherent in the Gaussian dispersion model apply to MILDOS-AREA. Studies have shown that, for relatively simple terrains,

Gaussian dispersion predicts concentrations within a factor of two of the actual concentrations, particularly over long time periods. Topographic maps of OU1 show do not indicate drastic changes in slopes such as large valleys or hills between source and receptor.

- Discrete Particle Sizes - MILDOS-AREA assumes that suspendible particles, which in nature are distributed in a continuous spectrum of sizes, can be grouped into one or more discrete groups represented by the Aerosol Mean Aerodynamic Diameter (AMAD) for each group. This assumption affects the resuspension and deposition models of the code. While the number of groups that can be used is limited to four, the field data will typically include only two discrete particle size distributions total suspended particulates (TSP and PM-10). Therefore, the model will adequately represent the available field data.

- Vegetated Cover Fraction - MILDOS-AREA assumes that the entire contaminated surface is bare. This assumption is corrected by multiplying the results by (1-VF) where VF is the vegetated cover fraction. This assumption may still lead to conservative (i.e., overpredictive) concentrations depending on the height of the vegetation. Since mostly grasses and shrubs, rather than tall trees, cover parts of the site, this assumption will not be overly conservative.

- Soil Moisture - MILDOS-AREA assumes that the contaminated soil is dry. This assumption is conservative since contaminated dust will be generated in greater amounts from dry soils, rather than wet soils. Since the code was developed for Western mill tailings sites near Colorado with similar climates, no significant impacts from this assumption are anticipated.

3.5.2 Data Summary for Atmospheric Emission, Transport and Fate Modeling -

Specific data requirements for airborne transport models may be grouped into the following general categories:

- Soil/contaminant characteristics (soil concentration, particle size, distribution)
- Source characteristics (vegetated fraction, size, shape)
- Topography (elevation between source and receptor)

- Meteorological data (wind speed/direction, stability, mixing heights)
- Receptor characteristics (distance from source)

Table 3-3 summarizes the atmospheric model data needs for each of these categories. This list is limited to the parameters needed to run MILDOS-AREA, since many of these parameters will be site-specific. All other parameters used in subsequent calculations have already been discussed elsewhere (Technical Memorandum No. 6) or will not be site-specific.

Site-specific soil parameters such as particle size and distribution, if not available from characterization activities, will be input as code defaults for uranium mill tailing piles. The concentrations of each contaminant of concern in the soil may be obtained from results of the Phase III RI.

Source characteristics such as areal dimensions and shape will be obtained from maps indicating the OU1 boundaries (e.g., Figure 1 in Technical Memorandum No. 5, EG&G 1992). The areal fraction covered by vegetation or construction (i.e., buildings, roads, etc.) will be estimated by visual inspection.

Differences in elevation between source and receptor, as well as distances between the two, will be obtained by inspection of topographic maps. The distance to the nearest residences in the prevailing downwind directions will be used since these locations will potentially receive the highest contaminant concentrations.

The most current annual meteorologic data set available for the plant (1990) will be input to the code. Since the releases will occur at ground level, only measurements taken at a height of 10 meters or less will be used. Only limited wind data specific to OU1 have been collected, but the data collected from the on-site RFP meteorological tower are considered to

TABLE 3-3
DATA SUMMARY FOR AIRBORNE EMISSION AND TRANSPORT MODELING

Parameter	Units	Value/Range	Source
Joint frequency distribution of atmospheric stability class (A, B, C, D, E, F), wind speed (1-3, 4-6, 7-10, 11-16, 17-21, >21 knots), and wind direction (16 sectors)	—[a]	576 values; each is greater than zero but less than one; total approximately one	RFP Site Environmental Report for 1990, RFP-ENV-90, Appendix C Tables[b]
Mean annual morning and afternoon mixing heights	m	268 (morning) 2543 (afternoon)	Data for Denver, Colorado, from Holzworth (1972)[c]
Particle size (AMAD)	μm	1-10, respirable 10-80, transportable	Code default used for mill tailings piles
Particle size distribution	—[a]	0-1 (1-10 μm) 0-1 (10-80 μm) Sum equal to 1	Phase III RI
Activity distribution ratio (activity concentration in respirable particles to activity concentration in all particles)	—[a]	1-2.5	Engineering judgement
Soil concentration (total of both respirable and transportable particulates)	pCi/g[d]	—	Phase III RI

TABLE 3-3 (cont'd)
DATA SUMMARY FOR AIRBORNE EMISSION AND TRANSPORT MODELING

Parameter	Units	Value/Range	Source
Contaminated area (dimensions and surface area)	m, m^2	~400 (m, E-W) x ~200 (m, N-S) ≈ 80,000[e]	OU1 boundaries converted to rectangular area
Receptor location, elevation above source, distance from source	x coord. (E-W), km y coord. (N-S), km z coord. (Elev), m	1-4 km distance; 1.5 m elevation	Distance from OU1 to site boundaries or nearest residents in prevailing wind directions; height of breathing zone

[a] — = Unitless/no data available.
[b] EG&G (1991f).
[c] Holzworth (1972).
[d] Soil contamination input as pCi/g can be converted to $\mu g/g$ or mg/g for non-radionuclides by interpreting output concentrations in units of μg or mg, respectively, per m^3 (in air) or per m^2 (on surface) at the receptor location.
[e] Approximate dimensions of OU1 boundary and surface area.

be representative of conditions encountered at OU1. Since no site-specific data exist for average mixing heights at RFP, annual average mixing heights recorded for the Denver area will be input. Due to their low sensitivity in the dispersion calculations and low spatial variability, these are expected to be representative of conditions at OU1. As stated in Section 1.2, this report is not intended to describe the methods by which the modeling will be performed. A description of the methods to be used in applying the models will be described in detail in the Phase III RI and PHE reports.

4.0 SUMMARY

In order to model the fate and transport of contaminants at OU1, several models have been evaluated for their applicability in the unsaturated zone, ground water, surface water, and air. Model selection was based on the following five general categories:

1. The selected model(s) should be able to adequately simulate site conditions.
2. The selected model(s) should be able to satisfy the objectives of the study.
3. The selected model(s) should be verified and reasonably well field-tested.
4. The selected model(s) should be well documented, peer-reviewed, and available.
5. The selected model(s) should be practical and cost-effective.

The following models were selected to meet the requirements of the PHE and are described in Section 3 of this document:

- The Jury and Johnson models for soil gas transport
- The USLE and associated equations for surface water transport in overland flow to the SID
- MILDOS-AREA for atmospheric modeling to model emission from the source, transport in air, and deposition at the receptor locations of contaminants originating from OU1. MILDOS-AREA will be coupled with the plant uptake (root and foliar) models contained in the RESRAD code (Gilbert et al. 1989) and the consumption and occupancy factors established in Technical Memorandum No. 6 (DOE 1992) and MILDOS-AREA simulated concentrations for receptor concentration estimates.

Data required to conduct modeling for the PHE were evaluated. Much of the available data will be obtained from investigations that occurred prior to the Phase III RI. Phase III data will be used to select COCs and to characterize source areas associated with OU1.

5.0 BIBLIOGRAPHY

Barfield, B.J., R.C. Warner, and C.T. Haan. 1981. *Applied Hydrology and Sedimentology for Disturbed Areas*, Oklahoma Technical Press.

Bond, F., and S. Hwang. 1988. *Selection Criteria for Mathematical Models Used in Exposure Assessments: Ground Water Models*, U. S. Environmental Protection Agency, EPA/600/8-88/075.

Cowherd, C., G. Maleski, P. Engelhart, and D. Gillette. 1984. *Rapid Assessment of Exposure to Particulate Emissions from Surface Contamination Sites*, EPA/600/8-85-002, U.S. Environmental Protection Agency.

DOE. 1987. *Comprehensive Environmental Assessment and Response Program, Phase 2: Rocky Flats Plant, Draft Site-Specific Monitoring Plan*, U.S. Department of Energy.

DOE. 1992. *Public Health Risk Assessment, 881 Hillside Area (OU-1), Exposure, Scenarios*, U.S. Department of Energy, Technical Memorandum No. 6, Rev. 4.0 Rocky Flats Plant, June 1991.

EG&G. 1989. *Rocky Flats Plant Environmental Site Report for 1989*, U.S. Department of Energy, Rocky Flats DE-AC0490D62349.

EG&G. 1990a. *Task 3, Shallow High Resolution Seismic Reflection Profiling in the Medium Priority Sites (Operable Unit No. 2) at the Rocky Flats Plant*, U.S. Department of Energy, Rocky Flats Plant.

EG&G. 1990b. *Background Geochemical Characterization Report for 1990*, U.S. Department of Energy, Rocky Flats Plant, December 1990.

EG&G. 1991a. *Operable Unit No. 1, IM/IRA Implementation Documentation*, U.S. Department of Energy, Rocky Flats Plant, February 1991.

EG&G. 1991b. *Final 881 Hillside Area Phase III, RFI/RI Work Plan*, U.S. Department of Energy, Rocky Flats Plant, March 1991.

EG&G. 1991c. *Selection of Exposure Scenarios, Computer Models, and Data Collection Requirements for Human Health Risk Assessments*, U.S. Department of Energy, November 1991.

EG&G. 1991d. *French Drain Geotechnical Investigation*, U.S. Department of Energy, Rocky Flats Plant.

EG&G. 1991e. *Rocky Flats Plant Site-Wide Quality Assurance Project Plan for CERCLA Remedial Investigations/Feasibility Studies and RCRA Facility Investigations/Corrective Measures Studies Activities*, U.S. Department of Energy, Rocky Flats Plant.

EG&G. 1991f. *Rocky Flats Plant Site Environmental Report (1990)*, EG&G Rocky Flats, 1991.

EG&G. 1992a. *Technical Memorandum 5, Addendum to Final Phase RFI/RI Work Plan, Surface Soil Sampling and Analysis Plan (DRAFT), Operable Unit No. 1*, Rocky Flats Plant, January, 1992.

EG&G 1992b. *Draft Phase III RFI/RI Report*, Rocky Flats Plant, 881 Hillside Area, Operable Unit One.

EPA. 1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water-Part I (Revised-1985)*, U.S. Environmental Protection Agency, Environmental Research Laboratory, EPA 600/6-85/002a.

Freeze, R.A., and J.A. Cherry. 1979. *Groundwater*, New Jersey, Prentice Hall, Inc.

Gilbert, T.L., C. Yu, Y.C. Yuan, A.J. Zielen, M.J. Jasko, and A. Wallo III. 1989. *A Manual for Implementing Residual Radioactive Material Guidelines*, ANL/ES-160 DOE/CH/8901.

Holzworth, C.G. 1972. *Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States*, EPA/AP-101, EPA Office of Air Programs, January 1972.

Hurr, R.T. 1976. *Hydrology of a Nuclear-Processing Plant Site*, Rocky Flats, U.S. Geological Survey Open File Report 76-268.

Hydro-Search, Inc. 1985. *Hydrogeologic Characterization of the Rocky Flats Plant, Golden, Colorado*, Project No. 1520, December 1985.

IAEA. 1989. *Evaluating the Reliability of Predictions Made Using Environmental Transfer Models*, International Atomic Energy Agency, Safety Series No. 100.

IAG. 1991. *Rocky Flats Interagency Agreement between the State of Colorado, the Environmental Protection Agency, and the Department of Energy*, January 1991.

Johnson, P.C., and R.A. Ettinger. 1991. *Heuristic Model for Predicting the Intrusion Rate of Vapor into Buildings*, Environmental Science Tech., 25:1445-1452, 1991.

Jury, W.A., W.F. Spencer, and W.J. Farmer. 1983. "Behavior Assessment Model for Trace Organics in Soil: I, Model Description," *Journal of Environmental Quality, 12*, 4, 1983, PP. 558-564.

Koffer, J.P. 1989. *Investigation of the Surface and Groundwater Flow Mechanics of an Evaporation Spray Field at the Rocky Flats Nuclear Weapons Plant, Jefferson County, Colorado*, Master of Eng. Rpt., No. ER 3728, Colorado School of Mines.

Lyman, W.J., W.F. Reehl, and D.H. Rosenblat. 1982. *Handbook of Chemical Property Estimation Methods*, McGraw-Hill, Inc., New York.

Montgomery, J.H., and L.M. Welkom. 1990. *Groundwater Chemicals Desk Reference*, Lewis Publishers, Inc., Michigan.

Price, A.B., and A.E. Amen. 1983. *Soil Survey of Golden Area, Parts of Denver, Douglas, Jefferson, and Park Counties*, U.S. Department of Agriculture, Soil Conservation Service.

Rockwell International. 1988. *Remedial Investigation Report for High Priority Sites (881 Hillside Area)*, U.S. Department of Energy, Rocky Flats Plant.

Sheppard, M.I., and D.H. Thibault. 1990. *Default Soil/Liquid Partition Coefficients, Kds, for Four Major Soil Types: A Compendium*, Health Physics, 59(4)471-482.

United Nations. 1988. "Sources, Effects and Risks of Ionizing Radiation". United Nations Scientific Committee on the Effects of Atomic Radiation. 1988.

van der Heijde, P.K.M., and R.A. Park. 1986. *U.S. EPA Ground water Modeling Policy Study Group, Report of Findings and Discussion of Selected Ground Water Modeling Issues*, International Ground water Modeling Center.

Verschueren, Karel. 1983. *Handbook of Environmental Data on Organic Chemicals, 2nd Ed.* Van Nostrand Reinhold Company, New York.

Wischmeier, W.H., and D.D. Smith. 1978. *Predicting Rainfall Erosion Losses - A Guide to Conservation Planning*, Agriculture Handbook No. 537, U.S. Department of Agriculture.

Yuan, Y., J.H. Wang, and A. Zielen. 1989. *MILDOS-AREA: An Enhanced Version of MILDOS for Large Area Sources*, ANL/ES-161, Argonne National Laboratory, Argonne, Illinois.

PUBLIC HEALTH EVALUATION
881 HILLSIDE AREA (OU1)
TECHNICAL MEMORANDUM NO. 8
CONTAMINANT IDENTIFICATION

Draft

Department of Energy
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM

September 1992

EXECUTIVE SUMMARY

This Contaminant Identification Technical Memorandum presents the contaminant identification and documentation required in Section VII.D.1.a of Attachment A of the Rocky Flats Interagency Agreement dated January 22, 1991 as part of the 881 Hillside Area, Operable Unit 1 (OU1), Public Health Evaluation (PHE) of the Baseline Risk Assessment. This Technical Memorandum was prepared to present the hazardous substances detected at the site and findings of the contaminants of concern (COC) identification process. The scope of this Technical Memorandum is limited to the identification of COCs for OU1 based on pre-Phase III 881 Hillside Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation (RI) environmental data, data collected during the Phase III 881 Hillside RFI/RI, and the supplemental surface soil sampling program completed in March 1992 and described in Technical Memorandum No. 5, Addendum to Final Phase III RFI/RI Work Plan.

The process was initiated using the environmental data for OU1 ground water and surface soils. These media represent the means by which current and future populations could potentially be exposed to OU1 contaminants either directly or indirectly. As described in Technical Memorandum No. 6, Exposure Scenarios, receptors cannot be directly exposed to contaminants in ground water; however, contaminants in ground water that volatilize can potentially affect breathing air in a hypothetical future on-site resident's home. All of the exposure scenarios in Technical Memorandum No. 6 include direct contact with surface soil and breathing air influenced by contaminants in soil.

Surface water and sediments in the South Interceptor Ditch and Woman Creek have potentially received contamination from OU1 via overland flow and/or air dispersion and subsequent deposition; however, these drainages also receive potentially contaminated runoff from other operable units. Because the routine monitoring locations in these drainages are

not located within OU1 proper, they are potentially influenced by other areas, and are planned for investigation as part of OU5 (Woman Creek priority drainage). Contaminant information from these locations was not considered for hazardous substance or COC identification. The COCs identified in OU1 surface soils were evaluated for use in the risk characterization of surface water and sediment in the vicinity of OU1 under the planned exposure scenarios.

Generally each step in the COC identification process represents a screening criterion which, after evaluation, either retains or eliminates a specific contaminant for consideration in the PHE. The screening process was initiated with the analytical results from the site-specific chemical analyte list for each of the media of concern as described above. For ground-water contaminant identification, the selected chemical analyte list was limited to volatile and semivolatile organics from the U.S. Environmental Protection Agency (EPA) target compound list and additional volatile organic compounds analyzed by method 502.2. The rationale for limiting the potential ground-water COCs to organics stems from the exposure pathway identification in Technical Memorandum No. 6, which limits ground-water contaminant exposure to those chemicals that volatilize and potentially affect breathing air. For surface soil, the site-specific chemical analyte list consists of semivolatile organics, polychlorinated biphenyls, pesticides from the EPA target compound list, metals from the EPA target analyte list, and select radionuclides.

These chemical analyte lists are extensive enough to identify the hazardous substances present at OU1 in the media of concern for the exposure pathways identified. Hazardous substances are defined here as those constituents with a greater than 5 percent detection frequency. Hazardous substances detected at the site are then further screened to develop the site-specific COCs. The resultant list of COCs represents those contaminants that survived the screening process. The screening process is summarized by the following implementation steps:

- Detection frequency evaluation and hot spot delineation
- Statistical comparison of site concentrations with background concentrations (surface soil metals and radionuclides only)
- Toxicity concentration screen

Based on the applied COC identification process, ground-water COCs are identified as follows: 1,1-dichloroethene, carbon tetrachloride, tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, and 1,2-dichloroethene. Of the COCs eliminated by the screening process, two contaminants were brought back into the quantitative risk assessment because of physical property considerations. Dichlorodifluoromethane and trichlorfluoromethane may have been introduced by refrigeration after sampling, but they are highly volatile (e.g., gases at room temperature) and were therefore added to the ground-water COC list. Chloroform and methylene chloride were also retained on the ground-water COC list because they are: (1) detected in greater than 5 percent of the samples, (2) carcinogens, and (3) potential transformation products from other COCs.

The surface soil COCs identified through the process are as follows: americium-241, plutonium-239,-240, dibenzofuran, fluoranthene, acenaphthene, fluorene, and pyrene. Because of the magnitude and uncertainty associated with the toxicity constant of dibenzofuran, benzo(a)pyrene and AROCLOR-1254 were retained after the toxicity screen in order to provide appropriate consideration of multiple contaminants in the risk assessment.

Of the surface soil COCs identified, contaminants which were also present in surface water or sediments are as follows: americium-241, plutonium-239,-240, benzo(a)pyrene, acenaphthene, fluoranthene, fluorene, pyrene, and AROCLOR-1254. These contaminants have been potentially resuspended and transported to these media via overland flow or wind dispersion of surface soil contaminants.

The COCs identified in this Technical Memorandum will be used to complete the contaminant fate and transport assessment as part of the PHE exposure assessment and risk characterization.

CONTAMINANTS OF CONCERN MATRIX FOR OU1 BY MEDIA				
Contaminant	Ground Water	Surface Soil	Surface Water	Sediment
1,1-Dichloroethene	X			
total 1,2-Dichloroethene	X			
1,1,1-Trichloroethane	X			
Acenaphthene		X		X
Americium-241		X	X	X
AROCLOR-1254		X		X
Benzo(a)pyrene		X		X
Carbon Tetrachloride	X			
Chloroform	X			
Dibenzofuran		X		
Dichlorodifluoromethane	X			
Fluoranthene		X		X
Fluorene		X		X
Methylene Chloride	X			
Plutonium-239,-240		X	X	X
Pyrene		X		X
Tetrachloroethene	X			
Trichloroethene	X			
Trichlorofluoromethane	X			

DRAFT

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APPENDICES

APPENDIX A SUMMARY STATISTICS

APPENDIX A1 SUMMARY STATISTICS - GROUND WATER

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APPENDIX B BACKGROUND COMPARISON STATISTICS

1.0 INTRODUCTION

1.1 Purpose

This Technical Memorandum presents the contaminant identification and documentation required in Section VII.D.1.a of Attachment A of the Rocky Flats Interagency Agreement dated January 22, 1991 for the 881 Hillside Area, Operable Unit 1 (OU1), Public Health Evaluation (PHE). This Technical Memorandum was prepared to present the hazardous substances detected at the site and findings of the contaminants of concern (COC) identification process.

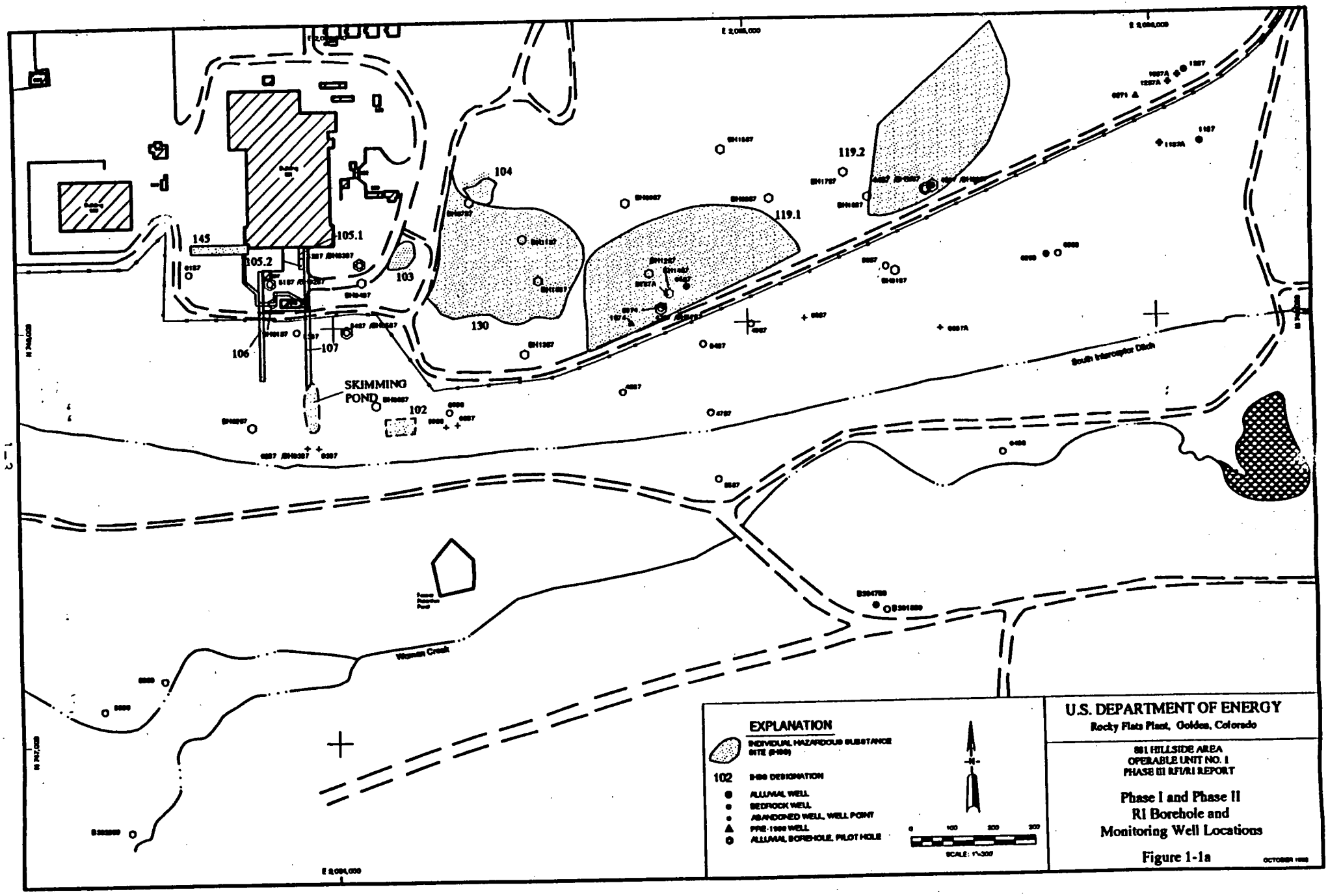
1.2 Scope

The scope of this Technical Memorandum is limited to the identification of COCs for OU1 based on pre-Phase III Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigation (RI) environmental data, data collected during the Phase III 881 Hillside RFI/RI, and the supplemental surface soil sampling program completed in March 1992 and described in Technical Memorandum No. 5, Addendum to Final Phase III RFI/RI Work Plan. The identification process was based on volatile and semivolatile contaminant information in ground water; and semivolatile organic, pesticide, polychlorinated biphenyl, inorganic, and radionuclide contaminant information in surface soils at OU1.

Ground-water COC selection was based on the volatile and semivolatile organic results of the 1990 and 1991 ground-water field sampling and analysis program, and the first quarter of the Phase III RFI/RI efforts. This time frame represents interim monitoring between the Phase II RI and the Phase III RFI/RI work. These programs were biased towards identifying and monitoring the most contaminated areas at OU1, so using these data for contaminant identification is appropriate. Surface soil data collected during the Phase III RFI/RI were

also used for hazardous substance and contaminant identification. The sample locations are illustrated in Figures 1-1a and 1-1b for ground water, and 1-2 for surface soil.

Surface water and sediments in the South Interceptor Ditch and Woman Creek have potentially received contamination from OU1 via overland flow and/or air dispersion and subsequent deposition; however, these drainages also receive potentially contaminated runoff from other operable units. Because the routine monitoring locations in these drainages are not located within OU1 proper, they are potentially influenced by other areas, and are planned for investigation as part of OU5 (Woman Creek priority drainage). Contaminant information from these locations was not considered for hazardous substance or COC identification. The COCs identified in OU1 surface soils were evaluated for use in the risk characterization of surface water and sediment in the vicinity of OU1 under the planned exposure scenarios.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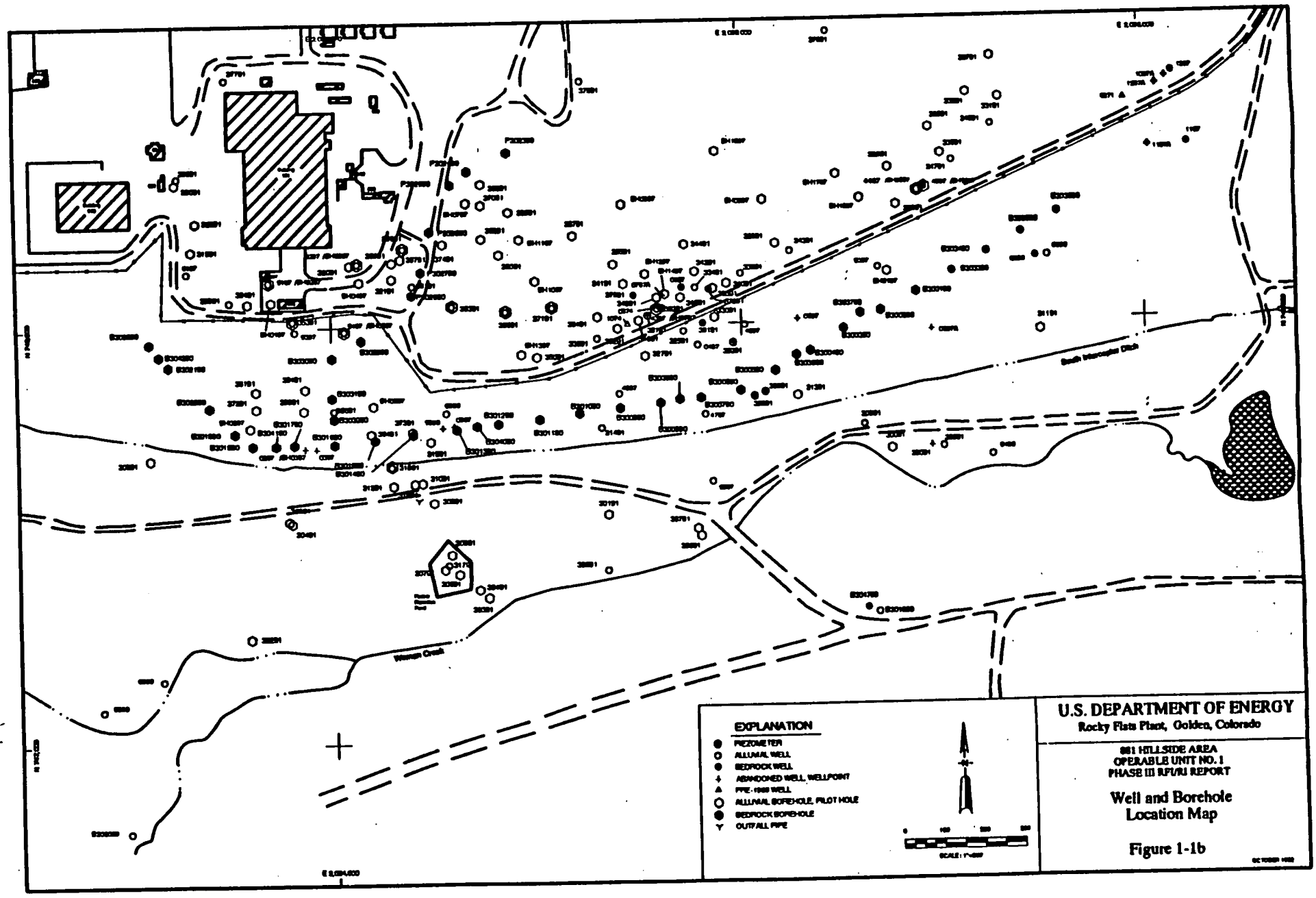
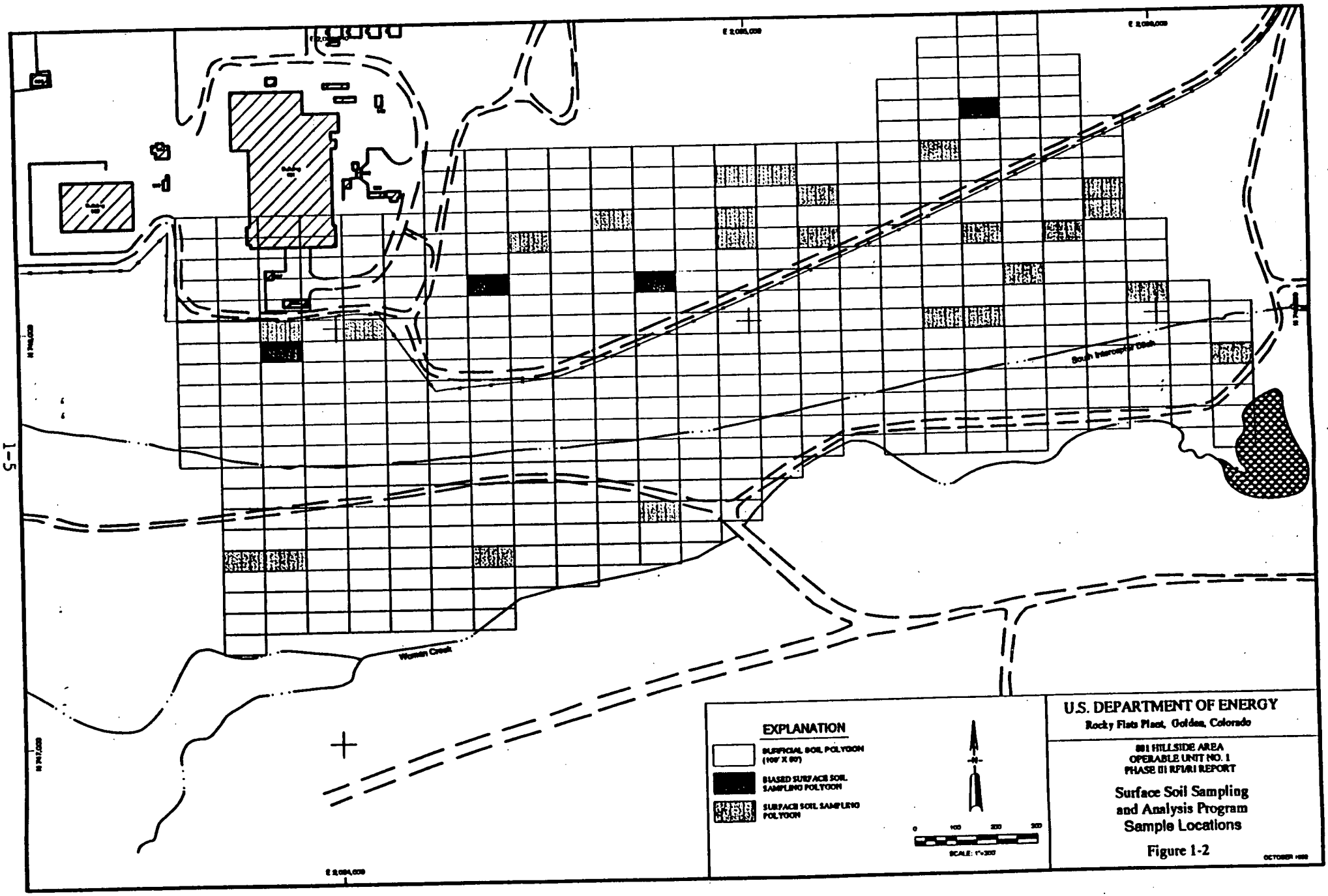
ABANDONED WELL, WELL POINT
PRE-1986 WELL
ALLUVIAL BOREHOLE, PILOT HOLE
N
SCALE: 1"=300'
U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado
881 HILLSIDE AREA
OPERABLE UNIT NO. 1
PHASE III RFI/RI REPORT
Phase I and Phase II
RI Borehole and
Monitoring Well Locations
Figure 1-1a


EXPLANATION
PIEZOMETER
ALLUVIAL WELL
BEDROCK WELL
ABANDONED WELL, WELLPOINT
PRE-1969 WELL
ALLUVIAL BOREHOLE, PILOT HOLE
BEDROCK BOREHOLE
OUTFALL PIPE
Walnut Creek
South Interceptor Ditch
U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado
881 HILLSIDE AREA
OPERABLE UNIT NO. 1
PHASE III RFI/RI REPORT
Well and Borehole
Location Map
Figure 1-1b


South Interceptor Ditch
Woman Creek
EXPLANATION
SURFICIAL SOIL POLYGON (100' X 100')
BIASED SURFACE SOIL SAMPLING POLYGON
SURFACE SOIL SAMPLING POLYGON
U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado
881 HILLSIDE AREA
OPERABLE UNIT NO. 1
PHASE III RFI/RI REPORT
Surface Soil Sampling and Analysis Program Sample Locations
Figure 1-2

2.0 IDENTIFICATION OF CONTAMINANTS OF POTENTIAL CONCERN

Hazard identification is the process of assessing whether exposure to a substance can be associated with an increase in the incidence of an adverse health effect (NRC, 1983). For the PHE, it involves identifying those contaminants that potentially represent the most toxic, persistent, or mobile constituents at the site based on environmental fate characteristics, toxicity, and the concentration of contaminants present at the site.

2.1 General Site-Specific Data Collection and Data Evaluation Considerations

Prior to initiating the COC identification process, several subtasks were conducted as part of a qualitative data evaluation. Laboratory and data validation qualifiers were used to direct data treatment for the COC development. Additionally, completeness of the Phase III RFI/RI data sets was assessed by comparing the samples collected versus actual results received. This evaluation also included an assessment of the percent validated.

Data qualified with an 'R' indicates they are considered unusable according to U.S. Environmental Protection Agency (EPA) validation criteria and were deleted from the data set prior to initiation of the COC identification process. The treatment of data qualified with 'B,' 'J,' or 'U' is discussed in the following paragraphs.

A 'B' qualifier assigned to an organic compound - volatile, semivolatile, pesticide, or polychlorinated biphenyl (PCB) - signifies that the compound was found in both the sample and an associated laboratory blank. If the reported sample concentration for a 'B' qualified compound was greater than five times the reported detection limit, the analytical result was used as reported. The 'B' qualifier was also assigned if the reported sample concentration was greater than ten times for routine laboratory contaminants; e.g., methylene chloride, acetone, toluene, phthalate esters, and 2-butanone. If the reported sample concentration did not exceed the criterion, the sample result was assigned a 'U' if not detected. A 'B' qualifier

on a metal signifies that the reported concentration is greater than the instrument detection limit but less than the contract required detection limit for that particular chemical. These data were used as reported.

An organic compound concentration is qualified 'J' if the compound is positively identified below the contract-required quantitation limit. The result is considered an estimate because of the uncertainty associated with detected concentrations at low levels. Data qualified with a 'J' were used in the COC screening process.

A 'U' qualifier assigned to an analytical result indicates that the analyzed chemical was not detected above the sample quantitation limit. The 'U' qualifier was the primary mechanism used for evaluating detection frequency for the organic and inorganic constituents. Radionuclides were considered to be nondetects if the error reported by the analytical laboratory was greater than the reported concentration, or if the result was negative.

After calculation of the detection frequency, elevated detection limit values due to dilutions and/or matrix effects were eliminated from the data set as outliers. If a detection limit concentration was greater than two times the most commonly observed detection limit, then the elevated detection limit was eliminated (Gansecki, 1991). An example application is 1,1-dichloroethene in ground water. The most commonly observed (standard) detection limit for 1,1-dichloroethene is 5 parts per billion (ppb). Out of 225 data points, 184 were nondetects. Of the 184 nondetect concentrations, 14 of the detection limit values were in excess of 10 ppb, more than twice the standard limit. These 14 nondetect data points were eliminated from the data set as elevated detection limit values. This dropped the total number of data points for 1,1-dichloroethene in ground water to 211.

Aside from the activities described above, nondetect values had little impact on the COC screening process. Detection limit values were used as reported concentrations for the

background comparison as described in Section 2.2.3. For example, a reported value of 5.0U for lead would be used as 5.0 throughout the screening process.

2.2 Screening of Contaminants

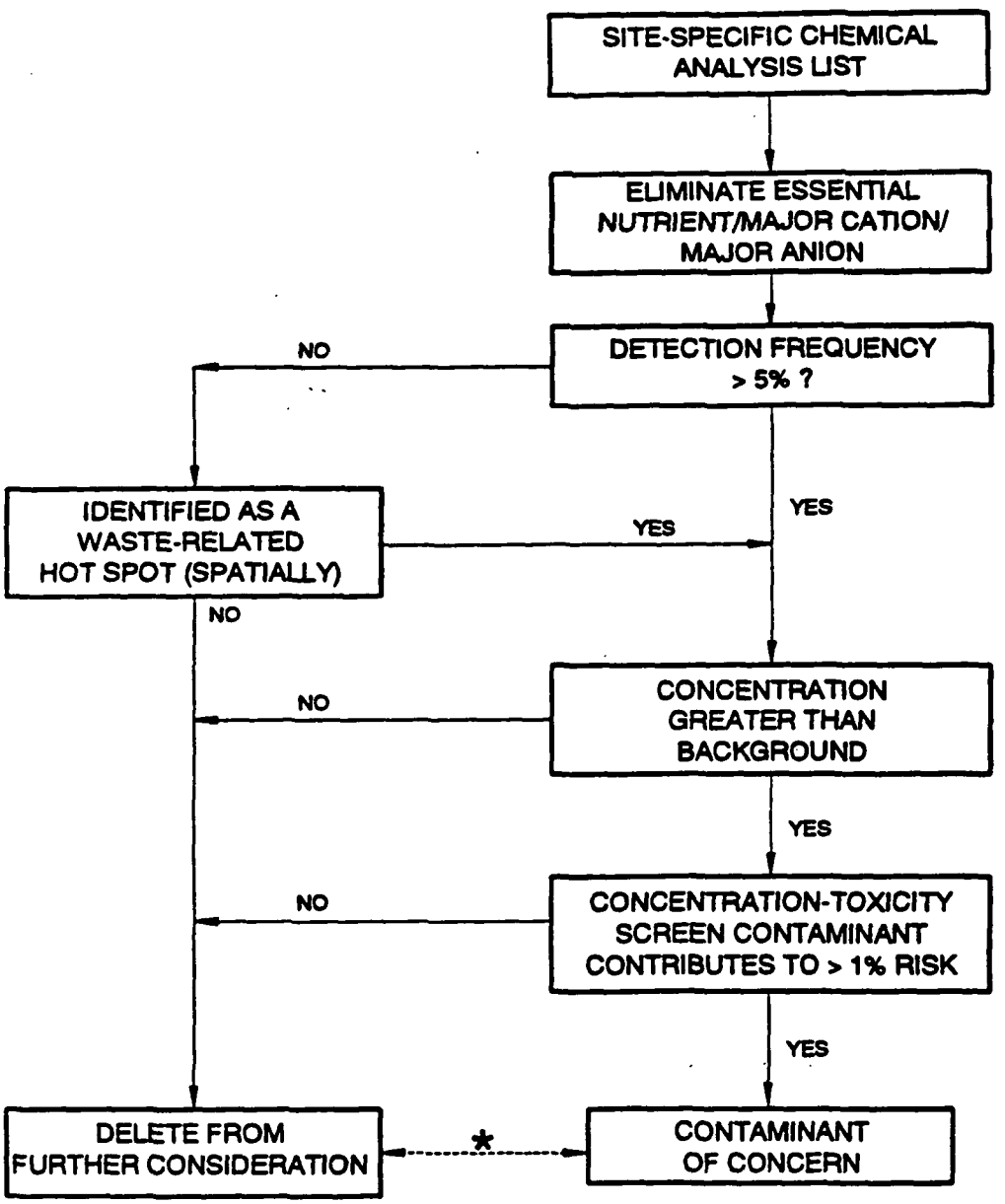
Figure 2-1 illustrates the screening process applied to the OU1 data set to identify the COCs for use in the PHE. This screening process was developed using the discussion in the EPA Risk Assessment Guidance for Superfund as a guide (EPA, 1989a). The process was initiated using the available environmental data from the OU1 1990-1991 routine ground-water sampling program, the first quarter of Phase III RFI/RI ground-water data, and the Phase III RFI/RI surface soils data. The resultant list of COCs represents those contaminants that survived the screening process. Generally, each step identified in Figure 2-1 represents a screening criterion which, after evaluation, either retains or eliminates a specific contaminant for consideration in the PHE. Flow to the left deletes chemicals from the quantitative risk assessment; flow to the right retains the contaminant in the quantitative risk assessment. If a potential contaminant of concern is associated with a "hot spot" (a waste-related contaminant concentrated in a particular area), the chemical was automatically included in the PHE.

Brief discussions of each step in the COC identification process are provided in the following sections. The tables which illustrate and support the findings of each step are included at the end of the document.

2.2.1 Site-Specific Chemical Analyte List

The screening process was initiated with the analytical results from the site-specific chemical analyte list for each media of concern: ground water and surface soils. For ground-water contaminant identification, the selected chemical analyte list was limited to

FIGURE 2-1. PROTOCOL FOR IDENTIFICATION OF CONTAMINANTS OF CONCERN



* Professional judgement may be used to retain or delete a chemical

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volatile and semivolatile organics from the EPA target compound list and additional volatile organic compounds analyzed by method 502.2. The rationale for limiting the potential ground-water COCs to organics stems from the exposure pathway identification in Technical Memorandum No. 6, Exposure Scenarios, which limits ground-water contaminant exposure to those chemicals that volatilize and potentially may contaminate the ambient air. For surface soil, the site-specific chemical analyte list consisted of semivolatile organics, PCBs, pesticides from the EPA target compound list, metals from the EPA target analyte list, and select radionuclides.

These chemical analyte lists were extensive enough to identify the hazardous substances present at OU1 in the media of concern for the identified exposure pathways. Appendix A presents each media-specific potential contaminant from the chemical specific analyte list along with summary statistics.

The potential volatile or semivolatile contaminants that were detected in at least one sample from the ground-water data set are presented in Table 2-1. Similarly, surface soil potential contaminants are presented in Tables 2-2a through 2-2d. According to the direction of EPA Region VIII representatives, those chemicals considered essential human nutrients were eliminated from consideration as potential COCs.[a] The chemicals eliminated according to this direction were calcium, magnesium, potassium, and sodium and are not included on the referenced tables.

2.2.2 Detection Frequency

The detection frequency of each potential contaminant was calculated and is summarized in Tables 2-1 and 2-2a through 2-2d and supported by the information presented in Appendix A. Those constituents with a detection frequency greater than 5 percent were

[a] Risk Assessment Technical Working Group meeting, July 1992

Table 2-1
Summary Statistics
Organics - Ground Water

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (µg/L)	Minimum Concentration Detected (µg/L)	Hot Spot[c] Identified?	Consider Chemical Further?
1,1-Dichloroethane	225	15	35.0	2.0	No	Yes
1,1-Dichloroethene	225	40	18,000	2.0	Yes	Yes
1,1,1-Trichloroethane	224	46	20,000	1.0	Yes	Yes
1,1,2-Trichloroethane	225	10	78.0	7.0	No	No[a]
1,2-Dichloroethene	179	10	12,000	10.0	No	Yes
1,2,4-Trimethylbenzene	34	1	0.12	0.12	No	No[a]
Bis(2-ethylhexyl)phthalate	30	2	8.0	2.0	No	Yes
Di-n-butylphthalate	30	4	2.0	2.0	No	Yes
Diethylphthalate	30	3	6.0	2.0	No	Yes
4-Methyl-2-pentanone	180	2	25.0	1.0	No	No[a]
Acetone	174	15	1,400	4.0	Yes	Yes
Benzene	223	1	3.0	3.0	No	No[a]
Carbon tetrachloride	225	39	4,500	0.10	Yes	Yes
Carbon disulfide	189	1	8.0	8.0	No	No[a]
1,2-Dichloroethane	225	10	29.0	4.2	No	No[a]

a Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
b Range of detection limits are provided in Appendix A
c "Hot Spot" is defined as a waste-related contaminant concentrated in a particular area
µg/L micrograms/liter

Table 2-1
Summary Statistics
Organics - Ground Water

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (µg/L)	Minimum Concentration Detected (µg/L)	Hot Spot[c] Identified?	Consider Chemical Further?
Dichlorodifluoromethane	36	2	2.82	0.81	No	Yes
Tetrachloroethene	225	71	6,000	0.1	Yes	Yes
Toluene	223	23	270.0	0.14	No	Yes
Total Xylenes	188	5	2.0	1.0	No	No[a]
Trichloroethene	225	86	14,000	0.12	Yes	Yes
Trichlorofluoromethane	36	5	10.2	1.1	No	Yes
Vinyl acetate	176	1	8.0	8.0	No	No[a]
Methylene Chloride	226	32	620	1.0	Yes	Yes

[a] Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
[b] Range of detection limits are provided in Appendix A
[c] "Hot Spot" is defined as a waste-related contaminant concentrated in a particular area
µg/L micrograms/liter

Table 2-2a
Summary Statistics
Metals and Inorganics - Surface Soil

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (µg/kg)	Minimum Concentration Detected (µg/kg)	Hot Spot[c] Identified	Consider Chemical Further
Antimony	31	1	9,800	9,800	No	No[a]
Aluminum	31	31	6,370,000	276,000	No	Yes
Arsenic	31	31	8,500	3,000	No	Yes
Barium	31	31	291,000	64,000	No	Yes
Beryllium	31	31	6,200	550	No	Yes
Cadmium	28	6	1,300	710	No	Yes
Chromium	31	31	80,500	8,400	No	Yes
Cobalt	31	31	11,700	5,200	No	Yes
Copper	31	31	181,000	14,200	No	Yes
Iron	31	31	29,700,000	11,600,000	No	Yes
Lead	31	31	228,000	7,100	No	Yes
Manganese	31	31	476,000	145,000	No	Yes
Mercury (Inorganic)	31	4	70.0	60.0	No	Yes
Nickel	31	31	101,000	10,000	No	Yes

[a] Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
[b] Range of detection limits are provided in Appendix A
[c] "Hot Spot" is defined as a waste-related contaminant concentrated in a particular area
µg/kg micrograms/kilogram

Table 2-2a
Summary Statistics
Metals and Inorganics - Surface Soil

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (µg/kg)	Minimum Concentration Detected (µg/kg)	Hot Spot[c] Identified	Consider Chemical Further
Selenium	31	16	750	200	No	Yes
Thallium	31	21	510	210	No	Yes
Vanadium	31	31	69,600	26,600	No	Yes
Zinc	31	31	182,000	52,900	No	Yes
Molybdenum	29	24	5,100	1,600	No	Yes
Strontium	31	31	104,000	233	No	Yes
Cesium	31	31	4,400	1,500	No	Yes
Lithium	31	31	15,000	4,500	No	Yes
Tin	31	24	85,900	28,300	No	Yes
Nitrate/Nitrite	27	24	3,830	340	No	Yes

[a] Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
[b] Range of detection limits are provided in Appendix A
[c] "Hot Spot" is defined as a waste-related contaminant concentrated in a particular area
µg/kg micrograms/kilogram

Table 2-2b
Summary Statistics
Semivolatile Organics - Surface Soil

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected(µg/kg)	Minimum Concentration Detected (µg/kg)	Hot Spot Identified?	Consider Chemical Further?
Napthalene	26	1	110	110	No	No[a]
Acenaphthylene	26	1	110	110	No	No[a]
Dibenzofuran	26	2	86.0	37.0	No	Yes
Fluorene	26	5	230	54.0	No	Yes
Anthracene	26	6	330	47.0	No	Yes
Fluoranthene	26	17	1,900	240	No	Yes
Pyrene	26	15	1,800	220	No	Yes
Benzo(a)anthracene	26	11	830	140	No	Yes
Chrysene	26	14	790	120	No	Yes
Benzo(b)fluoranthene	26	11	810	180	No	Yes
Benzo(k)Fluoranthene	26	10	740	120	No	Yes
Benzo(a)pyrene	26	12	750	120	No	Yes
Ideno (1,2,3,-c,d)pyrene	26	10	250	88.0	No	Yes
Dibenzo(a,h)anthracene	26	4	92.0	43.0	No	Yes
Benzo(g,h,i)perylene	26	8	350	82.0	No	Yes
Acenaphthene	26	6	240	45.0	No	Yes
Phenanthrene	26	15	1,600	130	No	Yes

a Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
b Range of detection limits are provided in Appendix A
µg/kg micrograms/kilogram

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Table 2-2c
Summary Statistics
Pesticides/Polychlorinated Biphenyls (PCBs) - Surface Soil

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (µg/kg)	Minimum Concentration Detected (µg/kg)	Hot Spot Identified?	Consider Chemical Further?
AROCLOR-1248	26	1	670	670	No	No[a]
AROCLOR-1254	26	2	1,200	540	No	Yes

[a] Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
[b] Range of detection limits are provided in Appendix A
µg/kg micrograms/kilogram

Table 2-2d
Summary Statistics
Radionuclides - Surface Soil

Contaminant	Number of Data Points	Number of Detects[b]	Maximum Concentration Detected (pCi/g)	Minimum Concentration Detected (pCi/g)	Hot Spot Identified?	Consider Chemical Further?[a]
Uranium - 233, -234	31	31	1.66	0.6791	No	Yes
Uranium - 235	31	15	0.122	0.053	No	Yes
Uranium - 238	31	31	2.20	0.63	No	Yes
Americium - 241	31	29	1.94	0.023	No	Yes
Plutonium - 239, -240	31	31	13.0	0.068	No	Yes
Radium - 226	30	30	1.26	0.65	No	Yes
Radium - 228	30	30	3.05	1.33	No	Yes

[a] Detection frequency was less than 5%; hence, that chemical was eliminated (EPA, 1989a)
[b] Range of detection limits are provided in Appendix A
pCi/g picoCuries/gram

retained for further consideration; those with a detection frequency less than 5 percent were eliminated. The results of this COC identification step are supported by the information (i.e., total number of data points and number of detects) presented on Tables 2-1 for OU1 ground water and Table 2-2a through 2-2d for OU1 surface soils.

2.2.3 Hot Spot Delineation

The hot spot assessment step in the COC screening process was designed to retain contaminants with elevated concentrations that might otherwise be eliminated because of infrequent detection. In theory, if a contaminant eliminated from the detection frequency step in the screening process is concentrated in a particular area at an obviously elevated concentration, and is considered a potential waste-related contaminant, that contaminant would be brought back into the screening process as a potential COC.

To aid in the hot spot assessment step, all contaminant concentrations were compared qualitatively against the central tendency (e.g., mean) concentration on a chemical-specific basis. Those compounds exhibiting elevated concentrations with respect to the central tendency concentration of the data set are documented on Tables 2-1 and 2-2a through 2-2d. The chemicals associated with hot spots by this analysis were limited to several volatile organics in ground water and include: 1,1-dichloroethene, 1,1,1-trichloroethane, acetone, carbon tetrachloride, tetrachloroethene, trichloroethene, and methylene chloride.

2.2.4 Statistical Comparison to Background

Statistical methods were employed to determine if contaminants carried over from the detection frequency analysis had concentrations statistically different from site background concentrations. This comparison was limited to metals and radionuclides in surface soil; the organic compounds in groundwater were assumed to be anthropogenic, while detection of

volatile organics in the surface soil was not observed. Statistical tests were performed to assess if the concentration of a potential contaminant was statistically different from background levels. The first two tests analyzed for equality of variance between the two populations. Because the tests performed are affected by the underlying distribution (i.e., the tests assume a near-normal distribution), a second series of nonparametric tests were employed. All statistical analyses are described and presented in Appendix B. A third comparison consisted of comparing the observed site maximum concentrations to background concentrations defined in acceptable literature sources. The results of the background comparison are summarized on Table 2-3.

The first analysis performed was an equality of variance assessment using the F-Test and the Bartlett's Test of Homogeneity of Variance. The null hypothesis for this assessment assumed that if the outcome from both of these tests indicate that the population variances were equal, then the potential contaminant population and the background population were equal. In these cases, the site and background population were not considered significantly different and the contaminant was eliminated. The power of both the F-Test and Bartlett's Test are affected by the underlying distribution of the data; therefore, a second, nonparametric technique was also used.

The second test was employed when the null hypothesis for equality of variance failed in either of the parametric tests. The nonparametric Mann-Whitney U technique was used to assess whether the site and background concentrations were statistically different. The Mann-Whitney U (also called the Wilcoxin Rank Sum) technique was employed for two reasons: (1) many of the potential contaminants exhibited inequality of variance relative to the background data, and (2) the output from the test was not affected by the type of statistical distribution.

The Mann-Whitney U Test provides a method of deciding whether or not there is a difference between the site samples and background samples, or equivalently, whether or not

Table 2-3
Background Comparison Summary - Surface Soil

Chemical	Equality of Variance Indicates the Null Hypothesis (Site = Background) is Correct		Mann-Whitney U Test Indicates the Site Population is ≤ Background Population		Literature Values Indicate Site Data is Within Published Background Range	Consider Chemical Further
	F-Test	Bartlett's	Mean Rank Sum Comparison	Significant Difference		
Aluminum	Yes	Yes	—	—	—	No
Arsenic	Yes	Yes	—	—	—	No
Barium	No	Yes	Yes	—	—	No
Beryllium	Yes	No	No	Yes	—	No
Cadmium	Yes	Yes	—	—	—	No
Cesium	Yes	No	No	No	Yes[a]	No
Chromium	Yes	No	Yes	—	—	No
Cobalt	Yes	Yes	—	—	—	No
Copper	Yes	No	No	No	Yes[b]	No
Iron	Yes	Yes	—	—	—	No
[illegible]	Yes	No	Yes	—	—	No
Lithium	No	Yes	Yes	—	—	No
Manganese	Yes	No	Yes	—	—	No
Mercury	Yes	Yes	—	—	—	No
Molybdenum	Yes	No	No	No	Yes[b]	No
Nickel	Yes	No	No	Yes	—	No
Nitrate/Nitrite	Yes	Yes	—	—	—	No

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Table 2-3
Background Comparison Summary - Surface Soil

Chemical	Equality of Variance Indicates the Null Hypothesis (Site = Background) is Correct		Mann-Whitney U Test Indicates the Site Population is ≤ Background Population		Literature Values Indicate Site Data is Within Published Background Range	Consider Chemical Further
	F-Test	Bartlett's	Mean Rank Sum Comparison	Significant Difference		
Selenium	No	Yes	Yes	—	—	No
Strontium	Yes	Yes	—	—	—	No
Tallium	Yes	Yes	—	—	—	No
Tin	Yes	Yes	—	—	—	No
Vanadium	No	Yes	No	No	Yes[c]	No
Zinc	Yes	No	No	No	Yes[a]	No
Americium-241	No	No	No	No	No	Yes
Plutonium-239/240	No	No	No	No	No	Yes
Radium-226	No	Yes	Yes	—	—	No
Radium-228	No	Yes	Yes	—	—	No
Uranium-233/234	Yes	Yes	—	—	—	No
Uranium-235	Yes	Yes	—	—	—	No
Uranium-238	Yes	Yes	—	—	—	No

(a) Kabata-Pendias, A. and H. Pendias, 1984. Upper end of background range: cesium = 5100 μg/kg; molybdenum = 17,800 μg/kg
(b) Adriano, D.C., 1986. Upper end of background range: copper = 700,000 μg/Kg; zinc = 900,000 μg/Kg
(c) Bowen, H.J.M., 1979. Upper end of background range: vanadium = 500,000 μg/Kg
"—" Indicates that there was no need to perform the test or that the step does not apply

they come from the same population. A detailed description of the test is presented in Appendix B. Two measures of background comparability were employed: (1) comparison of the mean rank sums of the site data and background data generated from the test, and (2) assessment of the statistically significant differences between the two populations. If the results of the Mann-Whitney U Test indicated the mean rank sum of the background data set was higher than the mean rank sum of the site data set, then the potential contaminant concentration was considered to be less than the corresponding background concentration. In these cases, the chemical was eliminated from further consideration in the PHE.

The second measure employed provides a means of assessing whether the two populations exhibit significant statistical differences. The sample statistic, Z, is computed from the ranks of the populations. The probability, p, is then found from the Z value using a cumulative normal distribution table (e.g., Table A1, Gilbert, 1987). If the significance level, α, for a one-tailed probability test exceeds 0.10, the populations do not demonstrate a significant difference and are considered statistically equal. Those chemical data that met this criterion were eliminated from further consideration in the PHE.

The last consideration in the background comparison was information from published background concentrations for select chemicals. The literature search was limited to copper, molybdenum, vanadium, cesium, and zinc in surface soil, all of which are relatively common, rock-forming metals. The maximum concentration for each of these metals (see Table 2-2a) was compared to ranges observed in other soils. Each of these metals was under the upper end of its corresponding background range as indicated on Table 2-3. As a result, the source of these metals in OU1 surface soil cannot be attributed to waste-related contamination and were therefore eliminated from consideration in the PHE.

2.2.5 Toxicity Concentration Screen

The purpose of the toxicity concentration screen was to focus the quantitative risk assessment on those contaminants posing the greatest risk given the exposure scenarios considered. The potential contaminants in ground water and the potential contaminants surviving the background comparison in surface soil were subjected to the screen. To conduct the toxicity concentration screen, noncarcinogens and carcinogens identified in each media were grouped accordingly and combined with toxicity constants identified in EPA's Integrated Risk Information System (IRIS) or Health Effects Assessment Summary Tables (HEAST). The maximum concentration for each of the potential contaminants was multiplied by the inverse of the reference dose (1/RfD) for the noncarcinogenic contaminants. The maximum concentration for carcinogens was multiplied by the slope factor. The multiplication described yields a risk factor for each of the potential contaminants (noncarcinogens and carcinogens). By summing the risk factors for each group, the contribution to the total risk was calculated on a percentage basis. Those contaminants contributing to greater than one percent of the total risk were retained for quantitative assessment in the PHE.

The results of the toxicity concentration screen for the ground-water contaminants are presented on Table 2-4 for noncarcinogens and Table 2-5 for carcinogens. Similarly, the results for the surface soil are presented on Tables 2-6, 2-7, and 2-8.

2.2.6 Mobility, Persistence, and Transformation Product Considerations

The chemical properties of the COCs identified in ground water and surface soil were evaluated in terms of mobility, persistence, and potential transformation products.

Table 2-4

Ground Water - VOC/SVOC
Non-Carcinogenic Contaminants - Toxicity Screen

Contaminant	Maximum Concentration (ug/L)	Reference Dose[a] (mg/kg/d)	Risk Factor	Percentage of Total Risk	Source of Toxicity Constant
1,1,1-Trichloroethane	20,000	0.09	2.2×10^5	2%	IRIS
1,1,2-Trichloro-1,2,2-trifluoroethane	270	7.7[b,c]	35.1	<1%	IRIS
1,1-Dichloroethane	35	0.1	3,500	<1%	IRIS
1,1-Dichloroethene	18,000	0.009	2.01E+06	20%	IRIS
Acetone	1,400	0.1	1.40E+04	<1%	IRIS
Bis(2-ethylhexyl)phthalate	8	0.02	400	<1%	IRIS
Carbon Tetrachloride	4,500	7×10^{-4}	6.4E+06	65%	IRIS
Chloroform	170	0.01	1.70E+04	<1%	IRIS
Di-n-butyl phthalate	2	0.1	20	<1%	IRIS
Dichlorodifluoromethane	25	0.05[b]	500	<1%	IRIS
Diethyl phthalate	6	0.8	7.5	<1%	IRIS
Methylene chloride	620	3[b]	206.7	<1%	IRIS
Tetrachloroethene (PCE)	6,000	0.01	6.00E+05	6%	IRIS
Toluene	270	0.4[b]	675	<1%	IRIS
cis-1,2-Dichloroethene	5	0.01	500	<1%	IRIS
1,2-Dichloroethene	12,000	0.02	6.00E+05	6%	IRIS
Trichlorofluoromethane	25	0.2[b]	125	<1%	IRIS
		TOTALS	9.9×10^6	100.00%	

a Oral reference doses (RfDs) were used only if inhalation RfDs were not available, since inhalation is the only complete exposure pathway for contaminants in ground water (EPA, 1989).
b Inhalation RfDs were available in HEAST.
c Derived from the reference concentration of 27 mg/m³ (EPA, 1992).
µg/L micrograms/liter
mg/kg/d milligrams/kilograms/day
HEAST Health Effects Assessment Summary Tables
IRIS Integrated Risk Information System

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Table 2-5

Ground Water - VOC/SVOC
Inhalation Carcinogenic Contaminants -Toxicity Screen

Contaminant	Concentration (µg/L)	Inhalation Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk Factor	Percentage of Total Risk	Source of Toxicity Constant
Carbon tetrachloride	4500	0.053	2.39E-01	0.91%	IRIS
Chloroform	170	0.081	1.38E-02	0.06%	IRIS
Methylene chloride	620	0.00165	1.02E-03	<0.01%	IRIS
Tetrachloroethene	6000	0.00182	1.09E-02	0.05%	IRIS
1,1,2-Trichloroethane	78	5.7×10^{-2}	4.4E-04	0.01%	NONE
1,1-Dichloroethene	18000	1.2	2.16E+01	97.87%	IRIS
1,1-Dichloroethane	35	ND	0.0	0.%	IRIS
Trichloroethene	14000	0.017	2.38E-01	1.08%	IRIS
		TOTALS	2.21E+01	100.00%	

µg/L micrograms/liter
mg/kg/d milligrams/kilograms/day
IRIS Integrated Risk Information System

Table 2-6

Surface Soil
Non-Carcinogenic Contaminants - Toxicity Screen
Inhalation/Ingestion

Contaminant	Maximum Concentration (µg/kg)	Oral Reference Dose (mg/kg/d)	Risk Factor	Percentage of Total Risk	Source of Toxicity Constant
Acenaphthene	240	0.06	4.00E+03	3.3%	IRIS
Americium-241	1.944 pCi/g	NA		0.00%	N/A
Anthracene	330	0.3	1.10E+03	0.9%	HEAST
AROCLOR-1254	1200	NA		0.00%	N/A
Benzo(a)anthracene	830	NA*		0.00%	N/A
Benzo(a)pyrene	750	NA		0.00%	IRIS
Benzo(b)fluoranthene	810	NA		0.00%	IRIS
Benzo(ghi)perylene	350	NA		0.00%	IRIS
Benzo(k)fluoranthene	740	NA		0.00%	IRIS
Chrysene	790	NA		0.00%	HEAST
Dibenzo(a,h)anthracene	92	NA		0.00%	N/A
Dibenzofuran	86.0	NA		0.00%	HEAST
Fluoranthene	1900	0.04	4.75E+04	40%	IRIS
Fluorene	230	0.04	5.75E+03	5%	IRIS
Phenanthrene	1,600	NA		0.00%	HEAST
Plutonium-239, -240	12.99 pCi/g	NA		0.00%	N/A
Pyrene	1800	0.03	6.00E+04	50%	IRIS
		TOTALS	1.2E+05	100%	

* An RfD for that compound is not available
µg/kg microgram/kilogram
pCi/g picoCurie/gram
mg/kg/d milligram/kilogram/day
N/A not applicable
IRIS Integrated Risk Information System
HEAST Health Effects Assessment Summary Tables

Table 2-7

Surface Soil
Radiological Contaminants - Toxicity Screen
Ingestion/Inhalation

Contaminant	Maximum Concentration (pCi/g)	Inhalation Slope Factor $(pCi)^{-1}$	Risk Factor	Percentage of Total risk	Source of Toxicity Constant
Americium-241	1.944	3.2E-08	6.22E-08	11%	IRIS
Plutonium-239, -240	12.99	3.8E-08	4.94E-07	89%	IRIS
		TOTALS	5.56E-07	100.00%	

pCi/g picoCuries/gram
pCi picoCuries
IRIS Integrated Risk Information System

Table 2-8

Nonradiological Carcinogenic Contaminants - Toxicity Screen
Surface Soil
Inhalation/Ingestion

Contaminant	Maximum Concentration (µg/kg)	Slope Factor $(mg/kg\text{-}d)^{-1}$	Risk Factor	Percentage of Total Risk	Source of Toxicity Constant
AROCLOR-1254	1200	7.7[b]	9.24E+03	0.71%	HEAST
Benzo(a)anthracene	830	0.61[a]	5.06E+02	0.04%	Region IV
Benzo(a)pyrene	750	6.1	4.58E+03	0.35%	HEAST
Benzo(b)fluoranthene	810	0.61[a]	4.94E+02	0.04%	Region IV
Benzo(k)fluoranthene	740	0.61[a]	4.51E+02	0.03%	Region IV
Chrysene	790	0.061[a]	4.82E+01	<0.01%	HEAST
Dibenzo(a,h)anthracene	92	6.1	5.61E+02	<0.01%	Region IV
Dibenzofuran	86	15,000	1.29E+06	98.82%	HEAST[c]
Ideno(1,2,3,-c,d)pyrene	250	0.1	2.5E+01	<0.01%	Region IV
		TOTALS	1.31E+06	100.00%	

[a] Slope factors for these PAHs were derived by multiplying the inhalation slope factor for BaP times the toxicity equivalency factor of 0.1 or 0.01 recommended by EPA Region IV
[b] Oral slope factor
[c] This slope factor was derived from the slope factor for TCDD using the toxicity equivalency factor method recommended by EPA Region VIII in the September 1992 risk Assessment Technical Working Group Meeting.
ug/kg micrograms/kilogram
mg/kg/d milligrams/kilogram/day
HEAST Health Effects Assessment Summary Tables

DRAFT

The volatile organic components identified are moderately mobile in the environment because they are soluble in water. Many of the volatile organic compounds identified as COCs are transformation products. The transformation reactions are sequential, so not all of the degradation compounds are expected to be present. The matrix on Table 2-9 provides a qualitative assessment of the potential transformation products of the identified COCs. With the exception of vinyl chloride, which is at the end of the reaction series for most of the COCs, all of the volatile organic COCs are potentially interrelated through degradation. Of the COCs eliminated by the screening process, two were brought back as for this reason. Chloroform and methylene chloride were also retained on the ground-water COC list because they are (1) detected in greater than 5 percent of the samples, (2) carcinogens, and (3) potential transformation products from other COCs. Of the COCs eliminated by the screening process, two contaminants were brought back into the quantitative risk assessment because of physical property considerations. Dichlorodifluoromethane and trichlorfluoromethane may have been introduced into samples by refrigeration after sampling, but they are highly volatile (e.g., gases at room temperature) and were therefore added to the ground-water COC list.

The radionuclide and organic COCs identified in surface soils are considered immobile because both analyte groups are relatively insoluble in water. As a result, each group is considered persistent in the environment. Degradation or transformation products for the organic constituents are not routinely observed; however, the radionuclides decay to daughter products. Americium-241 decays by alpha emission to neptunium-237, while plutonium-239 decays to uranium-235. Given the half-lives for these radionuclides (americium has a half-life of 432 years, plutonium has a half life of 24,110 years), detectable concentrations for these decay products are not presently observable. Additional surface soil COCs based on the consideration of mobility, persistence, or transformation products have not been included in the PHE.

Table 2-9

Potential Volatile Organic COC Transformation Products

Compound	Potential Transformation Products
1,1,1-Trichloroethane	1,1-Dichloroethene cis and trans 1,2-Dichloroethene Chloroethane Vinyl Chloride
1,2-Dichloroethene	Vinyl chloride
Chloroform	Methylene chloride
Trichloroethene	cis and trans 1,2-Dichloroethene Vinyl chloride
Tetrachloroethene	Trichloroethene cis and trans 1,2-Dichloroethene Vinyl chloride
Carbon tetrachloride	Chloroform
1,1-Dichloroethene	Vinyl chloride
Methylene chloride	None listed

2.3 Contaminants of Concern

The COCs identified in this Technical Memorandum will be used to complete the PHE exposure assessment and risk characterization. The COCs will also guide the contaminant fate and transport assessment.

Based on the applied COC identification process for OU1, the COCs identified in the groundwater are 1,1-dichloroethene, total 1,2-dichloroethene, carbon tetrachloride, methylene chloride, tetrachloroethene, trichloroethene, chloroform, trichlorofluoromethane, dichlorodifluoromethane, and 1,1,1-trichloroethane. COCs identified in the surface soil are: americium-241, plutonium-239,-240, dibenzofuran, fluoranthene, acenaphthene, fluorene, and pyrene. Because of the magnitude and uncertainty associated with the toxicity constant of dibenzofuran, benzo(a)pyrene and AROCLOR-1254 were retained after the toxicity screen in order to provide appropriate consideration of multiple contaminants in the risk assessment.

Table 2-10 summarizes the COCs identified and also presents the surface soil COCs which were positively identified in surface water and sediment locations in the vicinity of OU1. The COCs identified in this Technical Memorandum will be used to complete the PHE risk characterization. The COCs will also support the contaminant fate and transport assessment.

Table 2-10

Contaminants of Concern Matrix For OU1 By Media

Contaminant	Ground Water	Surface Soil	Surface Water	Sediment
1,1-Dichloroethene	X			
total 1,2-Dichloroethene	X			
1,1,1-Trichloroethane	X			
Acenaphthene		X		X
Americium-241		X	X	X
AROCLOR-1254		X		X
Benzo(a)pyrene		X		X
Carbon Tetrachloride	X			
Chloroform	X			
Dibenzofuran		X		
Dichlorodifluoromethane	X			
Fluoranthene		X		X
Fluorene		X		X
Methylene Chloride	X			
Plutonium-239,-240		X	X	X
Pyrene		X		X
Tetrachloroethene	X			
Trichloroethene	X			
Trichlorofluoromethane	X			

DRAFT

3.0 REFERENCES

Adriano, D.C., 1986. *Trace Elements in the Terrestrial Environment.* D.C. Adriano, 1986.

Bowen, H.J.M., 1979. *Environmental Chemistry of the Elements.* H.J.M. Bowen, Academic Press, 1979.

EPA, 1989a. *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual* (Part A), EPA/540/1-89/002, December, 1989.

EPA, 1989b. *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities - Interim Final Guidance,* OSWER - EPA/530-SW-89-025.

EPA, 1991. *Health Effects Assessment Summary Tables (HEAST),* Annual FY-1991, OERR 9200.6-303 (91-1), January 1991.

EPA, 1992. *Integrated Risk Information System.* EPA, July 1992

Gansecki, M., 1991. Comments on the "Background Geochemical Characterization Report for 1989 - Rocky Flats Plant". Mike Gansecki, August 1, 1992.

Gilbert, R.O., 1987. *Statistical Methods for Environmental Pollution Control,* Richard O. Gilbert, 1987.

Kabata-Pendias, A. and H. Pendias, 1984. *Trace Elements in Soils and Plants.*, Alina Kabata-Pendias and Henryk Pendias, CRC Press, 1984.

NRC, 1983. *Risk Assessment and Risk Management in the Federal Government: Managing the Process.* National Research Council, Committee on Institutional Means for Assessment of Risks to Public Health, National Academy Press, Washington, D.C.

APPENDIX A1

SUMMARY STATISTICS - GROUND WATER

TEST FOR NORMALITY

The test for normality depended on the number of data points (n). For $n \geq 50$ D'Agostino's analysis was used; for $n \leq 50$ the Shapiro-Wilk analysis was used.

D'Agostino's Analysis

D'Agostino developed the D statistic to test the null hypothesis of normality or lognormality when $n \geq 50$ (Gilbert 1987). This test was applied to the OU1 data set on a chemical-specific basis. The D test is conducted as follows:

(1) A random sample is drawn from the population of interest.

(2) The data is ordered from smallest to largest to obtain the sample order statistics.

(3a) Compute the D statistic (null hypothesis = normal distribution) using the following:

$$D = \frac{\sum_{i=1}^{n} (i - 1/2\,[n+1])\, x_{@}}{n^2 s}$$

(3b) Compute the D statistic (null hypothesis = lognormal distribution) using the following:

$$D = \frac{\sum_{i=1}^{n} (i - 1/2\,[n+1]) \times \ln_{@}}{n^2 s}$$

(5) The D statistic is transformed to the Y statistic by:

$$Y = \frac{D - 0.28209479}{0.02998598/\sqrt{n}}$$

(6) Reject the null hypothesis of a if Y is less than $\alpha/2$ or $1-\alpha/2$.

The Y statistic was used to select the best approximation of the distribution either normal or lognormal. If neither a normal or lognormal distribution was the appropriate choice for a specific data set as indicated by the Y statistic, the distribution was considered "other".

Shapiro and Wilk Analysis

The W Test is used for determining whether a data set has been drawn from an underlying normal or lognormal distribution for $n \leq 50$. The test is performed as follows (shown for a normal distribution):

1) Compute the factor d of the W test statistic.

$$d = \sum_{i=1}^{n} (X_i - \bar{X})^2 = \sum_{i=1}^{n} X_i^2 - \frac{1}{n}\left[\sum_{i=1}^{n} X_i\right]^2$$

where:

n = total number of data points
x_i = value of the i_{th} data point
x = mean of the data set

2) Order the n data from smallest to largest to obtain the sample order statistics

$$X_{[1]} \leq X_{[2]} \leq \ldots \leq X_{[n]}$$

3) Compute the factor k.
if n is even

$$k = \frac{n}{2}$$

if n is odd

$$k = \frac{n-1}{2}$$

4) Obtain the coefficients $a_1, a_2 \ldots a_k$

5) Compute the W statistic.

$$W = \frac{1}{d}\left[\sum_{i=1}^{k} a_i \left(X_{[n-i+1]} - X_{[i]}\right)\right]^2$$

6) Obtain the quantile at the significance level (0.05) from appropriate W statistic Table. If the W test statistic is less than the quantile, the i.e., null hypothesis is rejected (data set population does not have a normal distribution).

To test for a lognormal distribution, follow the top six steps using Y_i instead of X_i where:

$$Y_i = \ln X_i$$

Estimating to Median

The median of any distribution, no matter what its shape, can be estimated by the sample median.

1) The data are ranked from smallest to largest
2) The sample median (median of n data) is computed from the sample order Statistic

$$X_{[1]} \leq X_{[2]} \ldots X_{[n]}$$

as follows:

Sample median if n is odd =

$$X_{[(n+1)/2]}$$

if n is even =

$$\frac{1}{2}\left(X_{[n/2]} + X_{[(n+2)/2]}\right)$$

GROUNDWATER - ORGANICS/PESTICIDES/PCBs - 8/17/92

CHEMICAL = 1,1,1,2-TETRACHLOROETHANE

MAX NONDET = 100.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.441192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,1,1-TRICHLOROETHANE

MAX DETECT = 20000.0000000000 UG/L
MIN DETECT = 1.0000000000 UG/L
MAX NONDET = 150.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 1190.0289099526 UG/L
STD DEV = 3544.836251842878 UG/L
UCL = 1668.340626904031 52 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -62.96929399504098
STAT RANGE = -2.382 - 1.507
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 7.969065750804 UG/L
GEO STD DEV = 21.650157702705 UG/L
GEOMET UCL = 10.890364063551 29 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -25.630111755307
STAT RANGE = -2.382 - 1.507
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000[illegible] UG/L

TOTAL # DATA = 224
DETECTS = 45
NONDETECTS = 179
DETECT FREQ = 20.09 %

NONDETECTS > 2x NONDETECT [illegible]M = 13
TOTAL # STATISTICAL DATA =

=== HOTSPOT ANALYSIS ===
LOCATION = 6986 RESULT = 790.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 1800.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 3000.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 3200.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 3200.0000000000 UG/L QUAL = E
LOCATION = 0974 RESULT = 4400.0000000000 UG/L QUAL = E
LOCATION = 0974 RESULT = 4400.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 4500.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 4600.0000000000 UG/L QUAL = E

LOCATION = 4387	RESULT =	4600.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	5900.0000000000	UG/L	QUAL = B
LOCATION = 0974	RESULT =	6600.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	6600.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	6600.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	7400.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	7400.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	7400.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	7600.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	10000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	12000.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	12000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	13000.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	13000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	14000.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	14000.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	15000.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	18000.0000000000	UG/L	QUAL = E
LOCATION = 0974	RESULT =	19000.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	20000.0000000000	UG/L	QUAL = E

HOTSPOTS = 29

CHEMICAL = 1,1,2,2-TETRACHLOROETHANE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1522279793 UG/L
STD DEV = 1.886444612081 UG/L
UCL = 4.418374918036406 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.456363804713?9
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.513188600446 UG/L
GEO STD DEV = 4.456749288491 UG/L
GEOMET UCL = 3.141964111410444 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.13242557434?
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = [illegible] %

NONDETECTS > 2x [illegible]DETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 193

CHEMICAL = 1,1,2-TR[illegible]LORO-1,2,2-TRIFLUOR

MAX DETECT = [illegible].0000000000 UG/L
MIN DETECT = [illegible].4000000000 UG/L

MEAN = 89.9000000000 UG/L
STD DEV = 107.5951689281?3 UG/L
UCL = 195.34130554958051 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7990008201884717
TEST STAT = 0.748
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 32.107368571029 UG/L
GEO STD DEV = 4.752583043357 UG/L
GEOMET UCL = 36.76489995351891 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8911139541076969
TEST STAT = 0.748
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 8.2000000000 UG/L
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 4
DETECTS = 4
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 4

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 1,1,2-TRICHLOROETHANE

MAX DETECT = 78.0000000000 UG/L
MIN DETECT = 7.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 6.1454639175 UG/L
STD DEV = 10.643183242300 UG/L
UCL = 7.64317052503640 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -74.331337656037796
STAT RANGE = -2.398 - 1.487
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.950707463669 UG/L
GEO STD DEV = 4.475212833108 UG/L
GEOMET UCL = 3.58045851443467 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -35.650080477719
STAT RANGE = -2.398 - 1.487
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 10
NONDETECTS = 215
DETECT FREQ = 4.44 %

NONDETECTS > 2x NONDETECT MINIMUM = 31
TOTAL # STATISTICAL DATA = 194

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 1,1-DICHLOROETHANE

MAX DETECT = 35.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 5.1728205128 UG/L
STD DEV = 4.639908237774 UG/L
UCL = 5.82407114425714 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -48.710758688996929
STAT RANGE = -2.397 - 1.489
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 3.153316151510 UG/L
GEO STD DEV = 3.644861938928 UG/L
GEOMET UCL = 3.66490356177417 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -33.673966732696
STAT RANGE = -2.397 - 1.489
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 15
NONDETECTS = 210
DETECT FREQ = 6.67 %

NONDETECTS > 2x NONDETECT MINIMUM = 30
TOTAL # STATISTICAL DATA = 195

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 1,1-DICHLOROETHENE

MAX DETECT = 18000.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 500.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 812.9459715640 UG/L
STD DEV = 2604.864807786377 UG/L
UCL = 1164.425497598646S7 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -67.66657445449782
STAT RANGE = -2.582 - 1.507
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 7.806112786606 UG/L
GED STD DEV = 15.991122574977 UG/L
GEOMET UCL = 9.963826371822218 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -28.208482762316
STAT RANGE = -2.582 - 1.507
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 40
NONDETECTS = 185
DETECT FREQ = 17.78 %

NONDETECTS > 2x NONDETECT MINIMUM = 14
TOTAL # STATISTICAL DATA = 211

=== HOTSPOT ANALYSIS ===
LOCATION = 6986 RESULT = 690.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 1400.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 1700.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 2300.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 2400.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 2900.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 3600.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 4300.0000000000 UG/L QUAL = D
LOCATION = 4387 RESULT = 4300.0000000000 UG/L QUAL = D
LOCATION = 4387 RESULT = 4300.0000000000 UG/L QUAL = D
LOCATION = 4387 RESULT = 4800.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 4800.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 4900.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 5800.0000000000 UG/L QUAL = E
LOCATION = 0974 RESULT = 5800.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 6000.0000000000 UG/L QUAL = D
LOCATION = 0974 RESULT = 6100.0000000000 UG/L QUAL = D
LOCATION = 0974 RESULT = 6100.0000000000 UG/L QUAL = D
LOCATION = 0974 RESULT = 6100.0000000000 UG/L QUAL = D
LOCATION = 4387 RESULT = 7200.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 7900.0000000000 UG/L QUAL =
LOCATION = 4387 RESULT = 7900.0000000000 UG/L QUAL = E
LOCATION = 4387 RESULT = 8200.0000000000 UG/L QUAL = D
LOCATION = 0974 RESULT = 12000.0000000000 UG/L QUAL =
LOCATION = 0974 RESULT = 15000.0000000000 UG/L QUAL = E
LOCATION = 0974 RESULT = 16000.0000000000 UG/L QUAL = D
LOCATION = 0974 RESULT = 18000.0000000000 UG/L QUAL =
# HOTSPOTS = 27

CHEMICAL = 1,1-DICHLOROPROPENE

MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.441192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,2,3-TRICHLOROBENZENE

MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.0[illegible]0000000000 UG/L
UCL = 0.1[illegible]0000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.930
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.446482322781 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.930
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 33
DETECTS = 0
NONDETECTS = 33
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 32

CHEMICAL = 1,2,3-TRICHLOROPROPANE

MAX NONDET = 150.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.441192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,2,4-TRICHLOROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.441192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 69
DETECTS = 0
NONDETECTS = 69
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 36
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,2-DIBROMOETHANE

MAX NONDET = 25.0000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.841192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,3-DICHLOROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.0900000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.0997058824 UG/L
STD DEV = 0.001689577249 UG/L
UCL = 0.100273812164O1 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.175482541212353 4
TEST STAT = 0.933
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.099690595775 UG/L
GEO STD DEV = 1.017980863632 UG/L
GEOMET UCL = 0.44186513754773 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.175482541214475 8
TEST STAT = 0.933
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 71
DETECTS = 0
NONDETECTS = 71
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 37
TOTAL # STATISTICAL DATA = 34

CHEMICAL = 1,2-DICHLOROETHANE

MAX DETECT = 29.0000000000 UG/L
MIN DETECT = 4.2000000000 UG/L
MAX NONDET = 700.000000000O UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.6067708333 UG/L
STD DEV = 3.414399551433 UG/L
UCL = 5.089731948881893 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -53.09677750768846
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.680536185296 UG/L
GEO STD DEV = 4.597113221630 UG/L
GEOMET UCL = 3.302314552559S9 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -38.919551926104
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 10
NONDETECTS = 215
DETECT FREQ = 4.44 %

NONDETECTS > 2x NONDETECT MINIMUM = 33
TOTAL # STATISTICAL DATA = 192

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 1,2-DICHLOROETHENE

MAX DETECT = 12000.0000000000 UG/L
MIN DETECT = 10.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 85.8470666667 UG/L
STD DEV = 976.054419065435 UG/L
UCL = 242.048304833593321 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -98.4114076169808S
STAT RANGE = -2.452 - 1.423
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.532639741549 UG/L
GEO STD DEV = 2.221022983682 UG/L
GEOMET UCL = 5.888077445327O3 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -75.633315792544
STAT RANGE = -2.452 - 1.423
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 179
DETECTS = 10
NONDETECTS = 169
DETECT FREQ = 5.59 %

NONDETECTS > 2x NONDETECT MINIMUM = 29
TOTAL # STATISTICAL DATA = 150

--- HOTSPOT ANALYSIS ---
LOCATION = 0974 RESULT = 12000.0000000000 UG/L QUAL = D
# HOTSPOTS = 1

CHEMICAL = 1,2-DICHLOROPROPANE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1522279793 UG/L
STD DEV = 1.886444612081 UG/L
UCL = 4.418374918O9406 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.456363804713S9
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.513188800446 UG/L
GEO STD DEV = 4.456749288491 UG/L
GEOMET UCL = 3.141964114104444 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.13242557434Z
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 193

CHEMICAL = 1,2-DIMETHYLBENZENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,3-DICHLOROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.93
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.436137226879 32 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.933
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 71
DETECTS = 0
NONDETECTS = 71
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 37
TOTAL # STATISTICAL DATA = 34

CHEMICAL = 1,3-DICHLOROPROPANE

MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.44119220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,3-DICHLOROPROPENE

MAX NONDET = 8.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 0.0800000000 UG/L

MEAN = 0.0800000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.08000000000000 UG/L
INSUFFICIENT NUMBER OF DATAPOINTS TO DETERMINE DISTRIBUTION TYPE

GEO MEAN = 0.080000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 2.04000000000000 UG/L

MEDIAN = 0.0400000000 UG/L QUALIFIER = UJ
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 2
DETECTS = 0
NONDETECTS = 2
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 1

CHEMICAL = 1,3-DIMETHYLBENZENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.54119220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = 1,4-DICHLOROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.0994117647 UG/L
STD DEV = 0.003579154498 UG/L
UCL = 0.10054762432802 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.1754825412121525
TEST STAT = 0.933
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.099345844412 UG/L
GEO STD DEV = 1.038421557188 UG/L
GEOMET UCL = 0.44839798697663 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.1754825412126897
TEST STAT = 0.933
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 71
DETECTS = 0
NONDETECTS = 71
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 37
TOTAL # STATISTICAL DATA = 34

CHEMICAL = 1-CHLOROHEXANE

MAX NONDET = 200.0000000000 UG/L
MIN NONDET = 2.0000000000 UG/L
STD NONDET = 2.0000000000 UG/L

MEAN = 2.0000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 2.00000000000000 UG/L
INSUFFICIENT NUMBER OF DATAPOINTS TO DETERMINE DISTRIBUTION TYPE

GEO MEAN = 2.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 3.960000000000000 UG/L

MEDIAN = 1.0000000000 UG/L QUALIFIER = U*
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 2
DETECTS = 0
NONDETECTS = 2
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 1

CHEMICAL = 2,4,5-TRICHLOROPHENOL

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5517241379 UG/L
STD DEV = 2.027163925062 UG/L
UCL = 51.28953652351624 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2829813609259307
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.51442140300S UG/L
GEO STD DEV = 1.038325126842 UG/L
GEOMET UCL = 50.89233318871878 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2829813609218563
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.00000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2,4,6-TRICHLOROPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.3223841387906 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925907
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.1265328643277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.3077050646957 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.282981360925613
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.0000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2,4-DICHLOROPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.3223841387906 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925907
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.1265328643277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.3077050646957 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.282981360925613
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.0000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2,4-DIMETHYLPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.32238413087906 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2829813609259307
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.50770506463957 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2829813609252613
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.00000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2,4-DINITROPHENOL

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.4000000000 UG/L
STD DEV = 1.743559577416 UG/L
UCL = 51.16414867663302 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2359026947368308
TEST STAT = 0.905
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.372430205941 UG/L
GEO STD DEV = 1.032876254052 UG/L
GEOMET UCL = 50.82510818315652 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2359026947360258
TEST STAT = 0.905
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.0000000000 UG/L

TOTAL # DATA = 20
DETECTS = 0
NONDETECTS = 20
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 20

CHEMICAL = 2,4-DINITROTOLUENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277360021428570S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.4967849655841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 2,6-DINITROTOLUENE

MAX DETECT = 2.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.8666666667 UG/L
STD DEV = 1.543444920372 UG/L
UCL = 10.41898133811429 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.32816294552228?8
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.593558973503 UG/L
GEO STD DEV = 1.342699144632 UG/L
GEOMET UCL = 10.07403769168188 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2555259769947900
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 1
NONDETECTS = 29
DETECT FREQ = 3.33 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = 2-BUTANONE

MAX DETECT = 580.0000000000 UG/L
MIN DETECT = 110.0000000000 UG/L
MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 5.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 15.2656250000 UG/L
STD DEV = 50.887204367693 UG/L
UCL = 24.081383384585?8 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -86.832069433318744
STAT RANGE = -2.496 - 1.370
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 10.513289588532 UG/L
GEO STD DEV = 1.5252071471?8 UG/L
GEOMET UCL = 10.777511824606044 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -79.638057684939
STAT RANGE = -2.496 - 1.370
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 152
DETECTS = 2
NONDETECTS = 150
DETECT FREQ = 1.32 %

NONDETECTS > 2x NONDETECT MINIMUM = 24
TOTAL # STATISTICAL DATA = 128

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 2-CHLOROETHYL VINYL ETHER

MAX NONDET = 14.0000000000 UG/L
MIN NONDET = 0.1400000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 8.5350000000 UG/L
STD DEV = 5.114555210378 UG/L
UCL = 13.547264106169?8 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.866995870074?066
TEST STAT = 0.748
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 3.741657386774 UG/L
GEO STD DEV = 6.6988305281E3 UG/L
GEOMET UCL = 10.306511304?9366 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6921612279006224
TEST STAT = 0.748
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 4
DETECTS = 0
NONDETECTS = 4
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 4

CHEMICAL = 2-CHLORONAPHTHALENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 2-CHLOROPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.322384130879O6 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925930 7
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.507703064039 57 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.282981360925261 3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2-HEXANONE

MAX DETECT = 43.0000000000 UG/L
MIN DETECT = 43.0000000000 UG/L
MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.2340425532 UG/L
STD DEV = 2.76922883462 UG/L
UCL = 10.6911363842530O UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -95.0933150085176 4
STAT RANGE = -2.470 - 1.401
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 10.103984796936 UG/L
GEO STD DEV = 1.13020742196 1 UG/L
GEOMET UCL = 10.2905388418308 3 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -95.0933150085338
STAT RANGE = -2.470 - 1.401
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 169
DETECTS = 1
NONDETECTS = 168
DETECT FREQ = 0.59 %

NONDETECTS > 2x NONDETECT MINIMUM = 28
TOTAL # STATISTICAL DATA = 141

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 2-HYDROXY-2-METHYL-4-PENTANONE

MAX DETECT = 10.0000000000 UG/L
MIN DETECT = 8.9000000000 UG/L

MEAN = 9.5000000000 UG/L
STD DEV = 0.454606056566 UG/L
UCL = 10.0144351811021O UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.975787735645 1532
TEST STAT = 0.767
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 9.488999270078 UG/L
GEO STD DEV = 1.049464729815 UG/L
GEOMET UCL = 10.0765804083473 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.970988161161070
TEST STAT = 0.767
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 9.2500000000 UG/L
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 5
DETECTS = 5
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 5

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 2-METHYLNAPHTHALENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857980667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27736002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558411 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27736002142879801
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 2-METHYLPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.322384190879O6 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.28298136092593O7
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.507705064639S7 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.28298136092526l3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 2-NITROANILINE

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.3333333333 UG/L
STD DEV = 1.995530606279 UG/L
UCL = 51.24743194671220 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2775600021428572
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.497189054048 UG/L
GEO STD DEV = 1.037716321355 UG/L
GEOMET UCL = 50.868531070544808 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2775600214236864
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 2-NITROPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.3223841387906 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2829813609259307
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.307705063463957 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2829813609252613
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 3,3'-DICHLOROBENZIDINE

MAX NONDET = 23.0000000000 UG/L
MIN NONDET = 20.0000000000 UG/L
STD NONDET = 20.0000000000 UG/L

MEAN = 20.2000000000 UG/L
STD DEV = 0.748331477355 UG/L
UCL = 20.467786980017O8 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428583 4
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 20.187220110250 UG/L
GEO STD DEV = 1.035477583482 UG/L
GEOMET UCL = 20.557761004688 61 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021432133 2
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 20.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 20.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 3-NITROANILINE

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5333333333 UG/L
STD DEV = 1.995550806279 UG/L
UCL = 51.24743194671220 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428587 2
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.497189054048 UG/L
GEO STD DEV = 1.037716321355 UG/L
GEOMET UCL = 50.868531070546 08 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021423686 4
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 4,4'-DDD

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,4'-DDE

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,4'-DDT

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,6-DINITRO-2-METHYLPHENOL

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5517241379 UG/L
STD DEV = 2.027163925062 UG/L
UCL = 51.289536523516?4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.28298136092593O7
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.514421403008 UG/L
GEO STD DEV = 1.038325126842 UG/L
GEOMET UCL = 50.892333188718?8 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.28298136092185B3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.00000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 4-BROMOPHENYL PHENYL ETHER

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.4967849965584l UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 4-CHLORO-3-METHYLPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.3223841308790S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925930l
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.507705064639S7 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.28298136092526l3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = 4-CHLOROANILINE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 4-CHLOROPHENYL PHENYL ETHER

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 4-METHYL-2-PENTANONE

MAX DETECT = 25.0000000000 UG/L
MIN DETECT = 1.0000000000 UG/L
MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.0405405405 UG/L
STD DEV = 1.437332262282 UG/L
UCL = 10.272110589511105 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -91.71622943336057
STAT RANGE = -2.456 - 1.418
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 9.906768783323 UG/L
GEO STD DEV = 1.225674751459 UG/L
GEOMET UCL = 10.104238479470094 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -92.913376958134
STAT RANGE = -2.456 - 1.418
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 180
DETECTS = 2
NONDETECTS = 178
DETECT FREQ = 1.11 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 148

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = 4-METHYLPHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1538461538 UG/L
STD DEV = 0.532938710021 UG/L
UCL = 10.358701119879293 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.3006385416666724
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.141235431140 UG/L
GEO STD DEV = 1.049782613154 UG/L
GEOMET UCL = 10.344758876441147 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.3006385416661057
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4-NITROANILINE

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5333333333 UG/L
STD DEV = 1.995550606279 UG/L
UCL = 51.24743194671220 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021423587 2
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.497189054048 UG/L
GEO STD DEV = 1.037716321355 UG/L
GEOMET UCL = 50.868531070546 08 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021423686 4
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.00000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = 4-NITROPHENOL

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5517241379 UG/L
STD DEV = 2.027163925062 UG/L
UCL = 51.28953652351634 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925990 7
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.514421403008 UG/L
GEO STD DEV = 1.038325126842 UG/L
GEOMET UCL = 50.892333187187 8 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.282981360921856 3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.00000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = ACENAPHTHENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289998748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = ACENAPHTHYLENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289998748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = ACETALDEHYDE, CHLORO-

MAX NONDET = 35000.0000000000 UG/L
MIN NONDET = 350.0000000000 UG/L
STD NONDET = 350.0000000000 UG/L

MEAN = 350.0000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 350.00000000000000 UG/L
INSUFFICIENT NUMBER OF DATAPOINTS TO DETERMINE DISTRIBUTION TYPE

GEO MEAN = 350.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 351.959999999999987 UG/L

MEDIAN = 175.0000000000 UG/L QUALIFIER = U*
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 2
DETECTS = 0
NONDETECTS = 2
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 1

CHEMICAL = ACETONE

MAX DETECT = 1400.0000000000 UG/L
MIN DETECT = 4.0000000000 UG/L
MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 1.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 50.57534246658 UG/L
STD DEV = 131.917202946022 UG/L
UCL = 51.975731443105535 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -81.57347254289242
STAT RANGE = -2.460 - 1.413
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 10.938368982672 UG/L
GEO STD DEV = 2.306230741460 UG/L
GEOMET UCL = 11.312464410525222 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -48.753190909709
STAT RANGE = -2.460 - 1.413
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 174
DETECTS = 15
NONDETECTS = 159
DETECT FREQ = 8.62 %

NONDETECTS > 2x NONDETECT MINIMUM = 28
TOTAL # STATISTICAL DATA = 146

--- HOTSPOT ANALYSIS ---
LOCATION = 0974 RESULT = 1400.0000000000 UG/L QUAL = B
# HOTSPOTS = 1

CHEMICAL = ALDRIN

MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0500000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.050000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.0343876248784 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.050000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ANTHRACENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579868705 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870 3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.1222899987 48 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.4967849965584 1 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = AROCLOR-1016

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.884387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1221

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.884387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1232

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.894587624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1242

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.894587624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1248

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.50000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.884387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.50000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1254

MAX NONDET = 1.0000000000 UG/L
MIN NONDET = 1.0000000000 UG/L
STD NONDET = 1.0000000000 UG/L

MEAN = 1.0000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 1.00000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 1.768387624870B4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 1.00000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1260

MAX NONDET = 1.0000000000 UG/L
MIN NONDET = 1.0000000000 UG/L
STD NONDET = 1.0000000000 UG/L

MEAN = 1.0000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 1.00000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 1.38458762487084 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 1.00000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BENZENE

MAX DETECT = 3.0000000000 UG/L
MIN DETECT = 3.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1863874346 UG/L
STD DEV = 1.862954652796 UG/L
UCL = 4.450592823535965 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.091167697901 13
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.869826647088 UG/L
GEO STD DEV = 3.383576250436 UG/L
GEOMET UCL = 3.349687537666807 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.028734226602
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 223
DETECTS = 1
NONDETECTS = 222
DETECT FREQ = 0.45 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 191

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = BENZENE, (CHLOROMETHYL)-

MAX NONDET = 350.0000000000 UG/L
MIN NONDET = 3.5000000000 UG/L
STD NONDET = 3.5000000000 UG/L

MEAN = 3.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 3.5000000000000 UG/L
INSUFFICIENT NUMBER OF DATAPOINTS TO DETERMINE DISTRIBUTION TYPE

GEO MEAN = 3.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 5.460000000000000 UG/L

MEDIAN = 1.7500000000 UG/L QUALIFIER = U*
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 2
DETECTS = 0
NONDETECTS = 2
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 1

CHEMICAL = BENZENE, 1,2,4-TRIMETHYL

MAX DETECT = 0.1200000000 UG/L
MIN DETECT = 0.1200000000 UG/L
MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1006060606 UG/L
STD DEV = 0.003428996515 UG/L
UCL = 0.10177580277488 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.1781209650000334
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100554018604 UG/L
GEO STD DEV = 1.031747049038 UG/L
GEOMET UCL = 0.45257806996246 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.1781209650004751
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 1
NONDETECTS = 33
DETECT FREQ = 2.94 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZENE, 1,3,5-TRIMETHYL-

MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.44119220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = BENZO(a)ANTHRACENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.4967849965S841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980I
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BENZO(a)PYRENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.31185798667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BENZO(b)FLUORANTHENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.31185798667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BENZO(ghi)PERYLENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BENZO(b)FLUORANTHENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BENZOIC ACID

MAX DETECT = 14.0000000000 UG/L
MIN DETECT = 14.0000000000 UG/L
MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 48.6666666667 UG/L
STD DEV = 7.936253964190 UG/L
UCL = 52.061058555694425 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.31533846721774 25
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 47.3929571149 84 UG/L
GEO STD DEV = 1.315860666231 UG/L
GEOMET UCL = 47.955740018306 20 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27526175994009 04
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.000000000000000 UG/L

TOTAL # DATA = 21
DETECTS = 1
NONDETECTS = 20
DETECT FREQ = 4.76 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZYL ALCOHOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.322384130879 06 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.28298136092595 07
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.507705064639 57 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.28298136092526 13
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = BIS(2-CHLOROETHOXY)METHANE

MAX NONDET = 9000.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428570O
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 32
DETECTS = 0
NONDETECTS = 32
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 2
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BIS(2-CHLOROETHYL)ETHER

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428570O
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = BIS(2-CHLOROISOPROPYL)ETHER

MAX NONDET = 500.0000000000 UG/L
MIN NONDET = 5.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.9677419355 UG/L
STD DEV = 1.0512495073000 UG/L
UCL = 10.330768978761 99 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.37973056403131 08
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.894590440111 UG/L
GEO STD DEV = 1.141569252156 UG/L
GEOMET UCL = 10.296452945134 49 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.32978321638122 30
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 32
DETECTS = 0
NONDETECTS = 32
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 31

CHEMICAL = BIS(2-ETHYLHEXYL)PHTHALATE

MAX DETECT = 8.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.8000000000 UG/L
STD DEV = 1.5790292376 44 UG/L
UCL = 10.365048335846 16 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.39441548877005 24
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.522465674161 UG/L
GEO STD DEV = 1.344943675276 UG/L
GEOMET UCL = 10.003747587315 72 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.29497787195459 68
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 2
NONDETECTS = 28
DETECT FREQ = 6.67 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BROMOBENZENE

MAX NONDET = 350.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.0000000000 UG/L
UCL = 0.2000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = BROMOCHLOROMETHANE

MAX NONDET = 25.0000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.0000000000 UG/L
UCL = 0.50000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.841192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.50000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = BROMODICHLOROMETHANE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1952331606 UG/L
STD DEV = 1.895631758620 UG/L
UCL = 4.462676257726570 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -40.469636748652210
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.859594145367 UG/L
GEO STD DEV = 3.464153051369 UG/L
GEOMET UCL = 5.328330332352508 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -41.601747811307
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 193

CHEMICAL = BROMOFORM

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.1700000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1711891892 UG/L
STD DEV = 1.746807649459 UG/L
UCL = 4.422907778025919 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -40.085206222107949
STAT RANGE = -2.409 - 1.474
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 3.255769678199 UG/L
GEO STD DEV = 2.478042107768 UG/L
GEOMET UCL = 5.612860665539126 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -40.182583076088
STAT RANGE = -2.409 - 1.474
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 219
DETECTS = 0
NONDETECTS = 219
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 34
TOTAL # STATISTICAL DATA = 185

CHEMICAL = BROMOMETHANE

MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 0.3600000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 8.3513978495 UG/L
STD DEV = 3.486072316598 UG/L
UCL = 8.852995848648764 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -40.57641060967670
STAT RANGE = -2.408 - 1.476
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 6.528581509340 UG/L
GEO STD DEV = 2.470884195727 UG/L
GEOMET UCL = 6.883682587418117 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -40.45652543312 5
STAT RANGE = -2.408 - 1.476
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 220
DETECTS = 0
NONDETECTS = 220
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 34
TOTAL # STATISTICAL DATA = 186

CHEMICAL = BUTYL BENZYL PHTHALATE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.13333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.31185798667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2775600214285703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.12228998748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.49678499655841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2775600214279801
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = CARBON DISULFIDE

MAX DETECT = 8.0000000000 UG/L
MIN DETECT = 8.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 5.0000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 5.019108 2803 UG/L
STD DEV = 0.238662543888 UG/L
UCL = 5.056441044 40352 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -101.255069468559 78
STAT RANGE = -2.443 - 1.433
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.014990695728 UG/L
GEO STD DEV = 1.038098550170 UG/L
GEOMET UCL = 5.177375291911 97 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -101.255069468671
STAT RANGE = -2.443 - 1.433
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 189
DETECTS = 1
NONDETECTS = 188
DETECT FREQ = 0.53 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 157

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = CARBON TETRACHLORIDE

MAX DETECT = 4500.0000000000 UG/L
MIN DETECT = 0.1000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 189.02340776699 UG/L
STD DEV = 744.948673872725 UG/L
UCL = 290.764023337720 80 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -78.599614196739 95
STAT RANGE = -2.386 - 1.502
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.450136062713 UG/L
GEO STD DEV = 8.362153729258 UG/L
GEOMET UCL = 6.592069023168 71 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -30.301976584148
STAT RANGE = -2.386 - 1.502
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 39
NONDETECTS = 186
DETECT FREQ = 17.33 %

NONDETECTS > 2x NONDETECT MINIMUM = 19
TOTAL # STATISTICAL DATA = 206

--- HOTSPOT ANALYSIS ---
LOCATION = 1074 RESULT = 2000.0000000000 UG/L QUAL =
LOCATION = 1074 RESULT = 2200.0000000000 UG/L QUAL = E
LOCATION = 1074 RESULT = 2500.0000000000 UG/L QUAL = D
LOCATION = 1074 RESULT = 3000.0000000000 UG/L QUAL =
LOCATION = 1074 RESULT = 3100.0000000000 UG/L QUAL = D

LOCATION = 1074	RESULT =	3100.0000000000	UG/L	QUAL = E
LOCATION = 1074	RESULT =	3400.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	3700.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	3800.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	4200.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	4500.0000000000	UG/L	QUAL =

HOTSPOTS = 11

CHEMICAL = CHLOROBENZENE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1323437500 UG/L
STD DEV = 1.870410000330 UG/L
UCL = 4.396914770710S0 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -42.153708425309G2
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.502224774008 UG/L
GEO STD DEV = 4.447392016119 UG/L
GEOMET UCL = 3.131312003544S1 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.142507539080
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 33
TOTAL # STATISTICAL DATA = 192

CHEMICAL = CHLOROETHANE

MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 0.1200000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 8.3085263158 UG/L
STD DEV = 3.653591302705 UG/L
UCL = 8.828042684462S0 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.083476252S4117
STAT RANGE = -2.403 - 1.481
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.812176822777 UG/L
GEO STD DEV = 3.219923902023 UG/L
GEOMET UCL = 6.270028278040I UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -41.3051866607G6
STAT RANGE = -2.403 - 1.481
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 223
DETECTS = 0
NONDETECTS = 223
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 33
TOTAL # STATISTICAL DATA = 190

CHEMICAL = CHLOROFORM

MAX DETECT = 170.0000000000 UG/L
MIN DETECT = 0.1100000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 10.3820952381 UG/L
STD DEV = 24.626840533402 UG/L
UCL = 13.712945597664853 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -70.02619542177016
STAT RANGE = -2.582 - 1.506
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.381455344785 UG/L
GEO STD DEV = 4.993276645548 UG/L
GEOMET UCL = 4.056810240091 89 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -25.880412223331
STAT RANGE = -2.582 - 1.506
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 39
NONDETECTS = 186
DETECT FREQ = 17.33 %

NONDETECTS > 2x NONDETECT MINIMUM = 15
TOTAL # STATISTICAL DATA = 210

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = CHLOROMETHANE

MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 0.1800000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 8.3577083333 UG/L
STD DEV = 3.694615304502 UG/L
UCL = 8.880314682781 96 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.08456220257519
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.869862003857 UG/L
GEO STD DEV = 3.188433108930 UG/L
GEOMET UCL = 6.320858468722130 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -41.70577972116 2
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 33
TOTAL # STATISTICAL DATA = 192

CHEMICAL = CHLOROMETHYL METHYL ETHER

MAX NONDET = 70000.0000000000 UG/L
MIN NONDET = 700.0000000000 UG/L
STD NONDET = 700.0000000000 UG/L

MEAN = 700.0000000000 UG/L
STD DEV = 0.0000000000 UG/L
UCL = 700.0000000000000 UG/L
INSUFFICIENT NUMBER OF DATAPOINTS TO DETERMINE DISTRIBUTION TYPE

GEO MEAN = 700.0000000000 UG/L
GEO STD DEV = 1.0000000000 UG/L
GEOMET UCL = 701.9599999999981 UG/L

MEDIAN = 350.0000000000 UG/L QUALIFIER = U*
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 2
DETECTS = 0
NONDETECTS = 2
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 1

CHEMICAL = CHRYSENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558411 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = CUMENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.200000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.200000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = Di-n-BUTYL PHTHALATE

MAX DETECT = 2.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.0666666667 UG/L
STD DEV = 2.815828277592 UG/L
UCL = 10.074297874922 87 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.5000315414798203
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 8.167379753200 UG/L
GEO STD DEV = 1.739715195561 UG/L
GEOMET UCL = 8.789928840612 48 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.4505225825361555
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 4
NONDETECTS = 26
DETECT FREQ = 13.33 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = Di-n-OCTYL PHTHALATE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = DIBENZO(a,h)ANTHRACENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = DIBENZOFURAN

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277540021428570O
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013002 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = DIBROMOCHLOROMETHANE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0900000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1702804167 UG/L
STD DEV = 1.863590678047 UG/L
UCL = 4.434149740307 88 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.089126730702l5
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.824499402973 UG/L
GEO STD DEV = 3.459683153255 UG/L
GEOMET UCL = 3.313874407934 96 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -41.699318320197
STAT RANGE = -2.401 - 1.484
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 33
TOTAL # STATISTICAL DATA = 192

CHEMICAL = DIBROMOMETHANE

MAX NONDET = 200.0000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.0000000000 UG/L
UCL = 0.5000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.841192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = DICHLORODIFLUOROMETHANE

MAX DETECT = 2.8200000000 UG/L
MIN DETECT = 0.8100000000 UG/L
MAX NONDET = 52.0000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5779411765 UG/L
STD DEV = 0.393788385091 UG/L
UCL = 0.71050811154009 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2094346987372203
TEST STAT = 0.933
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.534291676663 UG/L
GEO STD DEV = 1.351027002908 UG/L
GEOMET UCL = 0.98836214685907 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2409677573922708
TEST STAT = 0.933
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 2
NONDETECTS = 34
DETECT FREQ = 5.56 %

NONDETECTS > 2x NONDETECT MINIMUM = 2
TOTAL # STATISTICAL DATA = 34

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = DIELDRIN

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870084 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = DIETHYL PHTHALATE

MAX DETECT = 6.0000000000 UG/L
MIN DETECT = 2.0000000000 UG/L
MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 7.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.4000000000 UG/L
STD DEV = 2.122891110412 UG/L
UCL = 10.15966682755593 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.5397886970414205
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 8.923484808939 UG/L
GEO STD DEV = 1.449096171488 UG/L
GEOMET UCL = 9.472037214203301 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.4573430141085192
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 3
NONDETECTS = 27
DETECT FREQ = 10.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = DIMETHYL PHTHALATE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427870S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558411 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DIST. UTION
LOGNORM STAT = 0.277560021427980I
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = ENDOSULFAN I

MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0500000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.050000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.0543876248708 4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.050000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDOSULFAN II

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDOSULFAN SULFATE

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDRIN

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870 84 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM =
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDRIN KETONE

MAX NONDET = 0.1000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.100000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.484387624870 84 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.100000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ETHYLBENZENE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1759162304 UG/L
STD DEV = 1.875174288109 UG/L
UCL = 4.441854615459 54 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -40.83520964116546
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.853367082620 UG/L
GEO STD DEV = 3.391594205712 UG/L
GEOMET UCL = 3.334365084607 15 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -41.496646054289
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 223
DETECTS = 0
NONDETECTS = 223
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 191

CHEMICAL = FLUORANTHENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678 05 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428 5703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427 9801
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = FLUORENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780 05 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021 4285705
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021 4279801
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = HEPTACHLOR

MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0500000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.050000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.0435876248 7084 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.050000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEPTACHLOR EPOXIDE

MAX DETECT = 0.1300000000 UG/L
MIN DETECT = 0.1300000000 UG/L
MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0530769231 UG/L
STD DEV = 0.0153846153385 UG/L
UCL = 0.0589905789417 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.20198514959999997
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.051871704334 UG/L
GEO STD DEV = 1.2017180001639 UG/L
GEOMET UCL = 0.5137972327485O UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.20198514960000617
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.05000000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 1
NONDETECTS = 25
DETECT FREQ = 3.85 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = HEXACHLOROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.4967849655841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = HEXACHLOROBUTADIENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.44119220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 69
DETECTS = 0
NONDETECTS = 69
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 36
TOTAL # STATISTICAL DATA = 33

CHEMICAL = HEXACHLOROCYCLOPENTADIENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857984667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.00000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = HEXACHLOROETHANE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = INDENO(1,2,3-cd)PYRENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = ISOPHORONE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428570S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.1222899987481 UG/L
GEO STD DEV = 1.046529015302 UG/L
GEOMET UCL = 10.4967849965584! UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980l
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = METHOXYCHLOR

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.884387624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = METHYLENE CHLORIDE

MAX DETECT = 620.0000000000 UG/L
MIN DETECT = 1.0000000000 UG/L
MAX NONDET = 620.0000000000 UG/L
MIN NONDET = 1.0000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 16.3397058824 UG/L
STD DEV = 58.509918230041 UG/L
UCL = 24.368872657485O1 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -84.519948187288821
STAT RANGE = -2.388 - 1.500
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.037079876847 UG/L
GEO STD DEV = 2.762626507609 UG/L
GEOMET UCL = 5.416188062911178 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -35.360229023728
STAT RANGE = -2.388 - 1.500
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 226
DETECTS = 32
NONDETECTS = 194
DETECT FREQ = 14.16 %

NONDETECTS > 2x NONDETECT MINIMUM = 22
TOTAL # STATISTICAL DATA = 204

--- HOTSPOT ANALYSIS ---
LOCATION = 4587 RESULT = 620.0000000000 UG/L QUAL = B
# HOTSPOTS = 1

CHEMICAL = N-NITROSO-Di-n-PROPYLAMINE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857988667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289998748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996553841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142879801
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = N-NITROSODIPHENYLAMINE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.311857986678O5 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428570S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = NAPHTHALENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 5.3710144928 UG/L
STD DEV = 4.961915871489 UG/L
UCL = 6.541809664006 45 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -8.31293517946004
STAT RANGE = -2.657 - 1.170
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 1.547904764237 UG/L
GEO STD DEV = 7.095450199365 UG/L
GEOMET UCL = 3.222120741782S3 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -8.780415223433
STAT RANGE = -2.657 - 1.170
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 69
DETECTS = 0
NONDETECTS = 69
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 69

CHEMICAL = NITROBENZENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021428570S
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013302 UG/L
GEOMET UCL = 10.496784996558 41 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980 1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = PENTACHLOROPHENOL

MAX NONDET = 58.0000000000 UG/L
MIN NONDET = 50.0000000000 UG/L
STD NONDET = 50.0000000000 UG/L

MEAN = 50.5517241379 UG/L
STD DEV = 2.027163925062 UG/L
UCL = 51.289536523516 24 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.282981360925930 7
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50.514421403008 UG/L
GEO STD DEV = 1.038325126842 UG/L
GEOMET UCL = 50.892333188711 78 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.282981360921856 3
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 50.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 50.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = PHENANTHRENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.3118579866780S UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.277560021427S703
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289998748 UG/L
GEO STD DEV = 1.046529013502 UG/L
GEOMET UCL = 10.4967849965S841 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.277560021427980I
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

CHEMICAL = PHENOL

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1379310345 UG/L
STD DEV = 0.506790981265 UG/L
UCL = 10.322584130879O6 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2829813609259307
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.126532843277 UG/L
GEO STD DEV = 1.047283281602 UG/L
GEOMET UCL = 10.507705064639S7 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2829813609252613
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.000000000000000 UG/L

TOTAL # DATA = 29
DETECTS = 0
NONDETECTS = 29
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

CHEMICAL = PROPANE, 1,2-DIBROMO-3-CHLORO-

MAX NONDET = 100.0000000000 UG/L
MIN NONDET = 2.0000000000 UG/L
STD NONDET = 2.0000000000 UG/L

MEAN = 2.0000000000 UG/L
STD DEV = 0.0000000000000 UG/L
UCL = 2.00000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 2.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 2.341119220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 2.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 2.00000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = PYRENE

MAX NONDET = 12.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 10.1333333333 UG/L
STD DEV = 0.498887651570 UG/L
UCL = 10.31185798667805 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.27756002142857O3
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 10.122289398748 UG/L
GEO STD DEV = 1.046529013902 UG/L
GEOMET UCL = 10.4967849965584l UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.27756002142798O1
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.00000000000000 UG/L

TOTAL # DATA = 30
DETECTS = 0
NONDETECTS = 30
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

```
CHEMICAL = STYRENE

 MAX DETECT =        0.2000000000   UG/L
 MIN DETECT =        0.2000000000   UG/L
 MAX NONDET =        700.0000000000   UG/L
 MIN NONDET =        0.1000000000   UG/L
 STD NONDET =        5.0000000000   UG/L

    MEAN =        4.1539267016   UG/L
  STD DEV =        1.851325483804   UG/L
    UCL =        4.41648283438814   UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT =        -42.884193333341707
 STAT RANGE =        -2.402 -        1.483
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

  GEO MEAN =        2.552741022231   UG/L
 GEO STD DEV =        4.357237542241   UG/L
 GEOMET UCL =        3.17068716345021   UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =        -42.848333210803
 STAT RANGE =        -2.402 -        1.483
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

   MEDIAN =        5.0000000000   UG/L    QUALIFIER = U
 MEDIAN UCL =        5.00000000000000   UG/L

TOTAL # DATA =        223
  # DETECTS =        1
# NONDETECTS =        222
 DETECT FREQ =        0.45  %

# NONDETECTS > 2x NONDETECT MINIMUM =        32
TOTAL # STATISTICAL DATA =        191

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND
```

```
CHEMICAL = TETRACHLOROETHENE

 MAX DETECT =        6000.0000000000   UG/L
 MIN DETECT =        0.1000000000   UG/L
 MAX NONDET =        150.0000000000   UG/L
 MIN NONDET =        0.0400000000   UG/L
 STD NONDET =        5.0000000000   UG/L

    MEAN =        370.9042790698   UG/L
  STD DEV =        1061.379072304459   UG/L
    UCL =        512.77976486120394   UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT =        -61.53676573223811
 STAT RANGE =        -2.378 -        1.511
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

  GEO MEAN =        7.919942717467   UG/L
 GEO STD DEV =        14.312307221315   UG/L
 GEOMET UCL =        9.83308156936794   UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =        -20.741217708416
 STAT RANGE =        -2.378 -        1.511
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

   MEDIAN =        5.0000000000   UG/L    QUALIFIER = U
 MEDIAN UCL =        5.00000000000000   UG/L

TOTAL # DATA =        225
  # DETECTS =        71
# NONDETECTS =        154
 DETECT FREQ =        31.56  %

# NONDETECTS > 2x NONDETECT MINIMUM =        10
TOTAL # STATISTICAL DATA =        215

=== HOTSPOT ANALYSIS ===
LOCATION = 0974     RESULT =    1100.0000000000   UG/L   QUAL =
LOCATION = 4387     RESULT =    1400.0000000000   UG/L   QUAL = E
LOCATION = 4387     RESULT =    1500.0000000000   UG/L   QUAL = B
LOCATION = 0974     RESULT =    1500.0000000000   UG/L   QUAL = D
LOCATION = 0974     RESULT =    1500.0000000000   UG/L   QUAL = D
```

LOCATION = 0974	RESULT =	1500.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	1800.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	2000.0000000000	UG/L	QUAL = E
LOCATION = 0974	RESULT =	2000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	2200.0000000000	UG/L	QUAL = BE
LOCATION = 0974	RESULT =	2200.0000000000	UG/L	QUAL = BE
LOCATION = 0974	RESULT =	2300.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	2500.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	2900.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	3000.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	3000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	3000.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	3200.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	3200.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	3200.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	3400.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	3600.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	4200.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	4200.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	5700.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	5700.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	6000.0000000000	UG/L	QUAL = D

HOTSPOTS = 27

CHEMICAL = TIC

MAX DETECT = 60.0000000000 UG/L
MIN DETECT = 8.7000000000 UG/L

MEAN = 28.2333333333 UG/L
STD DEV = 22.6592634996906 UG/L
UCL = 53.8747038173050 6 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.854247212989170 8
TEST STAT = 0.767
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 20.2891332879 99 UG/L
GEO STD DEV = 2.23899038973 4 UG/L
GEOMET UCL = 22.8227894282218 1 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.956571816828998 5
TEST STAT = 0.767
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 12.3500000000 UG/L
MEDIAN UCL = NOT COMPUTED - INSUFFICIENT DATA

TOTAL # DATA = 3
DETECTS = 3
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 3

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = TOLUENE

MAX DETECT = 270.0000000000 UG/L
MIN DETECT = 0.1400000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 12.1335500000 UG/L
STD DEV = 37.1269966048 63 UG/L
UCL = 17.2790892086 2014 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -80.8083367524 7463
STAT RANGE = -2.391 - 1.496
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 3.71595022990 9 UG/L
GEO STD DEV = 4.48096186942 6 UG/L
GEOMET UCL = 4.33697985463456 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -29.6526756914 21
STAT RANGE = -2.391 - 1.496
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 25
NONDETECTS = 200
DETECT FREQ = 10.91 %

NONDETECTS > 2x NONDETECT MINIMUM = 25
TOTAL # STATISTICAL DATA = 200

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = TOTAL XYLENES

MAX DETECT = 2.0000000000 UG/L
MIN DETECT = 1.0000000000 UG/L
MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 2.0000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.8782051282 UG/L
STD DEV = 0.61334464229 3 UG/L
UCL = 4.9744549851749 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -77.665193986057065
STAT RANGE = -2.445 - 1.432
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 4.805459704944 UG/L
GEO STD DEV = 1.227268691952 UG/L
GEOMET UCL = 4.9980495694116 3 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -78.549573509021
STAT RANGE = -2.445 - 1.432
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.000000000000000 UG/L

TOTAL # DATA = 188
DETECTS = 5
NONDETECTS = 183
DETECT FREQ = 2.66 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 156

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = TOXAPHENE

MAX NONDET = 1.0000000000 UG/L
MIN NONDET = 1.0000000000 UG/L
STD NONDET = 1.0000000000 UG/L

MEAN = 1.0000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 1.000000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1.000000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 1.584387624870 84 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 1.000000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = TRICHLOROETHENE

MAX DETECT = 14000.0000000000 UG/L
MIN DETECT = 0.1200000000 UG/L
MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.0400000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 1047.3814666667 UG/L
STD DEV = 2783.9287985976S9 UG/L
UCL = 1411.1481630167S092 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -58.059111540061 74
STAT RANGE = -2.369 - 1.520
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 14.090235108077 UG/L
GEO STD DEV = 24.602668394264 UG/L
GEOMET UCL = 17.244983778260 48 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -13.779406873730
STAT RANGE = -2.369 - 1.520
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 86
NONDETECTS = 139
DETECT FREQ = 38.22 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 225

=== HOTSPOT ANALYSIS ===

LOCATION = 0487	RESULT =	610.0000000000	UG/L	QUAL =
LOCATION = 32591	RESULT =	640.0000000000	UG/L	QUAL = D
LOCATION = 32591	RESULT =	680.0000000000	UG/L	QUAL = E
LOCATION = 1074	RESULT =	700.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	790.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	860.0000000000	UG/L	QUAL = D
LOCATION = 0487	RESULT =	880.0000000000	UG/L	QUAL =
LOCATION = 6986	RESULT =	890.0000000000	UG/L	QUAL =
LOCATION = 0487	RESULT =	950.0000000000	UG/L	QUAL = E
LOCATION = 1074	RESULT =	1100.0000000000	UG/L	QUAL =
LOCATION = 0487	RESULT =	1200.0000000000	UG/L	QUAL = D
LOCATION = 1074	RESULT =	1200.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	1200.0000000000	UG/L	QUAL = E
LOCATION = 0487	RESULT =	1200.0000000000	UG/L	QUAL = D
LOCATION = 1074	RESULT =	1200.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	1200.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	1300.0000000000	UG/L	QUAL = D
LOCATION = 1074	RESULT =	1400.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	1400.0000000000	UG/L	QUAL =
LOCATION = 1074	RESULT =	1700.0000000000	UG/L	QUAL =
LOCATION = 0487	RESULT =	1800.0000000000	UG/L	QUAL = E
LOCATION = 0974	RESULT =	2000.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	2700.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	2800.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	4000.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	4400.0000000000	UG/L	QUAL = E
LOCATION = 0974	RESULT =	4400.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	4700.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	4700.0000000000	UG/L	QUAL = E
LOCATION = 4387	RESULT =	5300.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	5800.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	5800.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	5800.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	7500.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	8400.0000000000	UG/L	QUAL =
LOCATION = 4387	RESULT =	8700.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	8800.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	8800.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	8800.0000000000	UG/L	QUAL = D
LOCATION = 0974	RESULT =	9800.0000000000	UG/L	QUAL =
LOCATION = 0974	RESULT =	11000.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	11000.0000000000	UG/L	QUAL = D
LOCATION = 4387	RESULT =	11000.0000000000	UG/L	QUAL = E
LOCATION = 0974	RESULT =	12000.0000000000	UG/L	QUAL = E

```
LOCATION = 0974     RESULT =   12000.0000000000   UG/L   QUAL =
LOCATION = 0974     RESULT =   13000.0000000000   UG/L   QUAL = D
LOCATION = 0974     RESULT =   13000.0000000000   UG/L   QUAL = E
LOCATION = 0974     RESULT =   14000.0000000000   UG/L   QUAL =
# HOTSPOTS =        48
```

```
CHEMICAL = TRICHLOROFLUOROMETHANE

 MAX DETECT =        10.2000000000   UG/L
 MIN DETECT =        1.1000000000   UG/L
 MAX NONDET =        25.0000000000   UG/L
 MIN NONDET =        0.5000000000   UG/L
 STD NONDET =        0.5000000000   UG/L

    MEAN =        1.5515151515   UG/L
  STD DEV =        2.866432817677   UG/L
     UCL =        2.52951968699230   UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
 NORMAL STAT =        0.39735742548267 14
  TEST STAT =        0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

  GEO MEAN =        0.724371060257   UG/L
 GEO STD DEV =        2.558265424924   UG/L
 GEOMET UCL =        1.59723128328407   UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =        0.42560580052104 99
  TEST STAT =        0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

   MEDIAN =        0.5000000000   UG/L     QUALIFIER = U
 MEDIAN UCL =        0.50000000000000   UG/L

TOTAL # DATA =        36
  # DETECTS =        5
# NONDETECTS =        31
 DETECT FREQ =        13.89  %

# NONDETECTS > 2x NONDETECT MINIMUM =        3
TOTAL # STATISTICAL DATA =        33

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND
```

CHEMICAL = VINYL ACETATE

MAX DETECT = 8.0000000000 UG/L
MIN DETECT = 8.0000000000 UG/L
MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 10.0000000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 9.9861111111 UG/L
STD DEV = 0.166086954765 UG/L
UCL = 10.013238647056 11 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -96.27421267219245
STAT RANGE = -2.464 - 1.409
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 9.984515920273 UG/L
GEO STD DEV = 1.018703373780 UG/L
GEOMET UCL = 10.15090413799029 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -96.2742126 73066
STAT RANGE = -2.464 - 1.409
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.00000000000000 UG/L

TOTAL # DATA = 176
DETECTS = 1
NONDETECTS = 175
DETECT FREQ = 0.57 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 144

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = VINYL CHLORIDE

MAX NONDET = 1400.0000000000 UG/L
MIN NONDET = 0.1400000000 UG/L
STD NONDET = 10.0000000000 UG/L

MEAN = 8.2999896373 UG/L
STD DEV = 3.754664544863 UG/L
UCL = 8.823712306227 05 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.65288276775990
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 5.019426786475 UG/L
GEO STD DEV = 4.461746684944 UG/L
GEOMET UCL = 5.648907352250 48 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.19878956539
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 10.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 10.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 193

CHEMICAL = alpha-BHC

MAX DETECT = 0.1200000000 UG/L
MIN DETECT = 0.0820000000 UG/L
MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0539230769 UG/L
STD DEV = 0.014575857481 UG/L
UCL = 0.059325585616059 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.29821107497953 13
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.052705597191 UG/L
GEO STD DEV = 1.209294149488 UG/L
GEOMET UCL = 0.51754300308350 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.30637684190786 95
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.050000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 2
NONDETECTS = 24
DETECT FREQ = 7.69 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = alpha-CHLORDANE

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.884387624870 84 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = beta-BHC

MAX DETECT = 0.0550000000 UG/L
MIN DETECT = 0.0550000000 UG/L
MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0501923077 UG/L
STD DEV = 0.000961538462 UG/L
UCL = 0.05056191117776 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2019851495999772
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050183625166 UG/L
GEO STD DEV = 1.0184978835644 UG/L
GEOMET UCL = 0.4416811608364471 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2019851496059493
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.05000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 1
NONDETECTS = 25
DETECT FREQ = 3.85 %

-# NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = cis-1,2-DICHLOROETHENE

MAX DETECT = 0.8600000000 UG/L
MIN DETECT = 0.1800000000 UG/L
MAX NONDET = 5.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1254545455 UG/L
STD DEV = 0.130571956456 UG/L
UCL = 0.17000467927673 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2040972265149949
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.108655988046 UG/L
GEO STD DEV = 1.461289684502 UG/L
GEOMET UCL = 0.6072346386282882 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.2581243378523487
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 2
NONDETECTS = 32
DETECT FREQ = 5.88 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = cis-1,3-DICHLOROPROPENE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1534031414 UG/L
STD DEV = 1.852457385818 UG/L
UCL = 4.41611980122710 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -42.8944667304896
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.543493805149 UG/L
GEO STD DEV = 4.388336323602 UG/L
GEOMET UCL = 3.165850394904300 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.8944667304499
STAT RANGE = -2.402 - 1.483
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 223
DETECTS = 0
NONDETECTS = 223
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 191

CHEMICAL = delta-BHC

MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0500000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.05000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.434387624870084 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.05000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = gamma-BHC (LINDANE)

MAX NONDET = 0.0500000000 UG/L
MIN NONDET = 0.0500000000 UG/L
STD NONDET = 0.0500000000 UG/L

MEAN = 0.0500000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.050000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.050000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.434587624870S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.0500000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.050000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = gamma-CHLORDANE

MAX NONDET = 0.5000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.500000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.8843876248708S4 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.500000000000000 UG/L

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = n-BUTYLBENZENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.0000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541197220567317 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = n-PROPYLBENZENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = o-CHLOROTOLUENE

MAX NONDET = 500.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 0
NONDETECTS = 36
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

CHEMICAL = p-CHLOROTOLUENE

MAX DETECT = 0.6000000000 UG/L
MIN DETECT = 0.6000000000 UG/L
MAX NONDET = 150.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2121212121 UG/L
STD DEV = 0.068567950297 UG/L
UCL = 0.23551605549765 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.17812096500000001
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.206770327443 UG/L
GEO STD DEV = 1.3072245047S1 UG/L
GEOMET UCL = 0.61866591895518 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.17812096500000097
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 36
DETECTS = 1
NONDETECTS = 35
DETECT FREQ = 2.78 %

NONDETECTS > 2x NONDETECT MINIMUM = 3
TOTAL # STATISTICAL DATA = 33

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = p-CYMENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673I7 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = sec-BUTYLBENZENE

MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.2000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.20000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.200000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.541192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 0
NONDETECTS = 34
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

CHEMICAL = sec-DICHLOROPROPANE

MAX NONDET = 25.0000000000 UG/L
MIN NONDET = 0.5000000000 UG/L
STD NONDET = 0.5000000000 UG/L

MEAN = 0.5000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.50000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.500000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.857845404236 71 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.5000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.50000000000000 UG/L

TOTAL # DATA = 31
DETECTS = 0
NONDETECTS = 31
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 30

CHEMICAL = sec-BUTYLBENZENE

MAX DETECT = 4.0000000000 UG/L
MIN DETECT = 4.0000000000 UG/L
MAX NONDET = 10.0000000000 UG/L
MIN NONDET = 0.2000000000 UG/L
STD NONDET = 0.2000000000 UG/L

MEAN = 0.3151515152 UG/L
STD DEV = 0.651395337820 UG/L
UCL = 0.537402527227765 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.178120965000000
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.219005563299 UG/L
GEO STD DEV = 1.671176558313 UG/L
GEOMET UCL = 0.789197979723958 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.178120965000018
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.2000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.20000000000000 UG/L

TOTAL # DATA = 34
DETECTS = 1
NONDETECTS = 33
DETECT FREQ = 2.94 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 33

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = trans-1,2-DICHLOROETHENE

MAX NONDET = 170.0000000000 UG/L
MIN NONDET = 0.1000000000 UG/L
STD NONDET = 0.1000000000 UG/L

MEAN = 0.1000000000 UG/L
STD DEV = 0.000000000000 UG/L
UCL = 0.10000000000000 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.100000000000 UG/L
GEO STD DEV = 1.000000000000 UG/L
GEOMET UCL = 0.441192205673 17 UG/L
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =
TEST STAT = 0.931
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 0.1000000000 UG/L QUALIFIER = U
MEDIAN UCL = 0.10000000000000 UG/L

TOTAL # DATA = 46
DETECTS = 0
NONDETECTS = 46
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 13
TOTAL # STATISTICAL DATA = 33

CHEMICAL = trans-1,3-DICHLOROPROPENE

MAX NONDET = 700.0000000000 UG/L
MIN NONDET = 0.0800000000 UG/L
STD NONDET = 5.0000000000 UG/L

MEAN = 4.1522279793 UG/L
STD DEV = 1.886444612081 UG/L
UCL = 4.41837491803406 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
LOGNORM STAT = -41.45636380471379
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT NORMAL - NORMAL STAT NOT WITHIN STAT RANGE

GEO MEAN = 2.513188600446 UG/L
GEO STD DEV = 4.456749288491 UG/L
GEOMET UCL = 3.14196411410444 UG/L
D'AGOSTINO'S GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = -42.132425574342
STAT RANGE = -2.400 - 1.486
DISTRIBUTION IS NOT LOGNORMAL - LOGNORM STAT NOT IN STAT RANGE

MEDIAN = 5.0000000000 UG/L QUALIFIER = U
MEDIAN UCL = 5.00000000000000 UG/L

TOTAL # DATA = 225
DETECTS = 0
NONDETECTS = 225
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 32
TOTAL # STATISTICAL DATA = 193

APPENDIX A2

SUMMARY STATISTICS - SURFACE SOIL

ORGANICS

SURFACE SOIL - ORGANICS/PESTICIDES/PCBs - 8/13/92

CHEMICAL = 1,2,4-TRICHLOROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717822200990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.551955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 1,2-DICHLOROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717822200990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.551955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 1,3-DICHLOROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371882 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.67176222099906S5
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505S443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.690878098385396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 1,4-DICHLOROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371882 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.67176222099906S5
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505S443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.690878098385396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2,4,5-TRICHLOROPHENOL

MAX NONDET = 2500.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.41577029289 UG/KG
UCL = 1956.6058511080877 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7693848288621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.638441330035 UG/KG
GEO STD DEV = 1.119683669579 UG/KG
GEOMET UCL = 1850.1173379459253 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7886812501082315
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.0924181056723 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2,4,6-TRICHLOROPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.33333333333 UG/KG
STD DEV = 45.074893585521 UG/KG
UCL = 402.61218376778800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.36048526225659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287096626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.90924181056721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2,4-DICHLOROPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489585521 UG/KG
UCL = 402.6121837677880 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.8825071800 97 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.3604852622 5659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.9092418105 6721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2,4-DIMETHYLPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489585521 UG/KG
UCL = 402.6121837677880 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.8825071800 97 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.3604852622 5659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.9092418105 6721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2,4-DINITROPHENOL

MAX NONDET = 2300.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.41577029289 UG/KG
UCL = 1956.6058511080779 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7693848288621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.638441330035 UG/KG
GEO STD DEV = 1.119683669579 UG/KG
GEOMET UCL = 1850.1173379459253 3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7886812501[illegible]
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - [illegible]NORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.092418105672 32 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2,4-DINITROTOLUENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.69230769231 UG/KG
STD DEV = 42.181630571862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.551955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2,6-DINITROTOLUENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.67176222009990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.69087809835835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2-CHLORONAPHTHALENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.67176222009990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.69087809835835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2-CHLOROPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489258552l UG/KG
UCL = 402.6121837677880O UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720360000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.360485262256S9 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.909241810567Z1 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2-METHYLNAPHTHALENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.551955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2-METHYLPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489585521 UG/KG
UCL = 402.6121837677800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.8825071800097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.3604852822569 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.9092418105672 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 2-NITROANILINE

MAX NONDET = 2000.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1800.0000000000 UG/KG

MEAN = 1846.1538461538 UG/KG
STD DEV = 202.3530221222552 UG/KG
UCL = 1923.9358437129704 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7404508623410355
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1835.9468382461535 UG/KG
GEO STD DEV = 1.108734593524 UG/KG
GEOMET UCL = 1836.5730221051514 7 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7638722440069516
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1800.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 2-NITROPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 330.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489358552l UG/KG
UCL = 402.6121837677880O UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.360485262253659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.909241810567l UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 3,3'-DICHLOROBENZIDINE

MAX NONDET = 940.0000000000 UG/KG
MIN NONDET = 670.0000000000 UG/KG
STD NONDET = 690.0000000000 UG/KG

MEAN = 756.1538461538 UG/KG
STD DEV = 85.713158628825 UG/KG
UCL = 789.1009236193580l UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7143930019027884
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 751.724430197671 UG/KG
GEO STD DEV = 1.111808140181 UG/KG
GEOMET UCL = 752.151795487987l0 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7390623327978947
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 720.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 740.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 3-NITROANILINE

MAX NONDET = 2300.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1800.0000000000 UG/KG

MEAN = 1846.1538461538 UG/KG
STD DEV = 202.35302212552 UG/KG
UCL = 1923.9358437129704 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7404508629410355
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1835.9468382461 35 UG/KG
GEO STD DEV = 1.108794593524 UG/KG
GEOMET UCL = 1896.3730221031 5147 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7638722440069516
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1800.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,4'-DDD

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.9326683888677 UG/KG
UCL = 19.012124588081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376221
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.175077971038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.599746248 21844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7595725767194065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,4'-DDE

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.932668388677 UG/KG
UCL = 19.01212458081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376221
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.175077971038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.599746248221844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7593725767194065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,4'-DDT

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.932668388677 UG/KG
UCL = 19.01212458081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376221
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.175077971038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.599746248221844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7593725767194065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4,6-DINITRO-2-METHYLPHENOL

MAX NONDET = 2300.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.41570209289 UG/KG
UCL = 1956.6058511080877 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7693848288621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.638441590035 UG/KG
GEO STD DEV = 1.1196836669579 UG/KG
GEOMET UCL = 1850.1173379459253 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7886812501082315
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.0924181056723 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 4-BROMOPHENYL PHENYL ETHER

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.69230769231 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505540 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4-CHLORO-3-METHYLPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489385521 UG/KG
UCL = 402.6121837677880 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.8825071800097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.3604852622565 9 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.9092418105672 1 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 4-CHLOROANILINE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037 1862 UG/KG
UCL = 393.9064044041 2750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519535055403 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343685 3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4-CHLOROPHENYL PHENYL ETHER

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.551955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4-METHYLPHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.074893585521 UG/KG
UCL = 402.61218376778800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.36048526225659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.90924181056721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = 4-NITROANILINE

MAX NONDET = 2000.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1800.0000000000 UG/KG

MEAN = 1846.1538461538 UG/KG
STD DEV = 202.35302212552 UG/KG
UCL = 1923.9358437129704 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7404508623410355
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1835.9468398246135 UG/KG
GEO STD DEV = 1.1087345935524 UG/KG
GEOMET UCL = 1836.5730221031514 7 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7638722440069516
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1800.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = 4-NITROPHENOL

MAX NONDET = 2000.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.41577029928 9 UG/KG
UCL = 1956.6058511080877 9 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7693848288621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.6384413300 35 UG/KG
GEO STD DEV = 1.1196836695 79 UG/KG
GEOMET UCL = 1850.1173379459 2533 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7886812501082315
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.0924181056 7252 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = ACENAPHTHENE

MAX DETECT = 240.0000000000 UG/KG
MIN DETECT = 45.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 326.7307692308 UG/KG
STD DEV = 118.5779771022630 UG/KG
UCL = 372.3106738664736 2 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8147620267554941
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 288.2626282764 78 UG/KG
GEO STD DEV = 1.818994468909 UG/KG
GEOMET UCL = 288.9618099425920 3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6792350179381371
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 350.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 0 UG/KG

TOTAL # DATA = 26
DETECTS = 6
NONDETECTS = 20
DETECT FREQ = 23.08 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = ACENAPHTHYLENE

MAX DETECT = 110.0000000000 UG/KG
MIN DETECT = 110.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 368.4615384615 UG/KG
STD DEV = 66.48842048937 2 UG/KG
UCL = 394.0118644948620 4 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6854700771650383
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 359.2000260731 48 UG/KG
GEO STD DEV = 1.2945893511059 UG/KG
GEOMET UCL = 359.6976501989843 2 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.5179670631311083
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 0 UG/KG

TOTAL # DATA = 26
DETECTS = 1
NONDETECTS = 25
DETECT FREQ = 3.85 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = ALDRIN

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.9467790304?4 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948327?
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.10265358?010 UG/KG
GEOMET UCL = 9.501688991208?0 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827?586074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949703912332?9 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ANTHRACENE

MAX DETECT = 330.0000000000 UG/KG
MIN DETECT = 47.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 332.4615384615 UG/KG
STD DEV = 113.471186050514 UG/KG
UCL = 376.078458151085?1 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.80144068365851?6
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 297.007481957064 UG/KG
GEO STD DEV = 1.770109303810 UG/KG
GEOMET UCL = 297.687890068117?0 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.652168061302?019
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 350.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.000000000000?0 UG/KG

TOTAL # DATA = 26
DETECTS = 6
NONDETECTS = 20
DETECT FREQ = 23.08 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = AROCLOR-1016

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790304735 UG/KG
UCL = 94.87007065878156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.7784259784 19 UG/KG
GEO STD DEV = 1.1026535870 10 UG/KG
GEOMET UCL = 91.30227237178570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.49703912332093 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1221

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790304735 UG/KG
UCL = 94.87007065878156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.7784259784 19 UG/KG
GEO STD DEV = 1.1026535870 10 UG/KG
GEOMET UCL = 91.30227237178570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.49703912332093 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1232

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790304735 UG/KG
UCL = 94.87007065878156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.778425978419 UG/KG
GEO STD DEV = 1.1026535870l0 UG/KG
GEOMET UCL = 91.20227237178570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.49709912332093 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1242

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790304735 UG/KG
UCL = 94.87007065878156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.778425978419 UG/KG
GEO STD DEV = 1.1026535870l0 UG/KG
GEOMET UCL = 91.20227237178570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.49709912332093 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = AROCLOR-1248

MAX DETECT = 670.0000000000 UG/KG
MIN DETECT = 670.0000000000 UG/KG
MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 83.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 113.8846153846 UG/KG
STD DEV = 111.6065640895793 UG/KG
UCL = 156.7847974730804 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.2578826491775100
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 98.46339871485 UG/KG
GEO STD DEV = 1.484555381213 UG/KG
GEOMET UCL = 99.03998458845872 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.3761684454836323
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 88.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 90.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 1
NONDETECTS = 25
DETECT FREQ = 3.85 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = AROCLOR-1254

MAX DETECT = 1200.0000000000 UG/KG
MIN DETECT = 540.0000000000 UG/KG
MAX NONDET = 230.0000000000 UG/KG
MIN NONDET = 170.0000000000 UG/KG
STD NONDET = 170.0000000000 UG/KG

MEAN = 235.0000000000 UG/KG
STD DEV = 205.618204821086 UG/KG
UCL = 314.0370933815839 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.3428748087119999
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 203.2971885695333 UG/KG
GEO STD DEV = 1.524812741457 UG/KG
GEOMET UCL = 203.8833077173946 2 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.4602705144026358
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 180.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 180.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 2
NONDETECTS = 24
DETECT FREQ = 7.69 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = AROCLOR-1260

MAX NONDET = 290.0000000000 UG/KG
MIN NONDET = 160.0000000000 UG/KG
STD NONDET = 170.0000000000 UG/KG

MEAN = 182.6923076923 UG/KG
STD DEV = 19.32668388771 UG/KG
UCL = 190.12124580817311 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376210
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 181.7507797710377 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 182.17544798755799 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7393725767192999
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 170.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 180.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BENZO(a)ANTHRACENE

MAX DETECT = 830.0000000000 UG/KG
MIN DETECT = 140.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 574.6153846154 UG/KG
STD DEV = 139.9513863318766 UG/KG
UCL = 428.41096559983646 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8986936976401013
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 549.086665069401 UG/KG
GEO STD DEV = 1.472538548579 UG/KG
GEOMET UCL = 549.6526906646198O UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9212620580348091
TEST STAT = 0.920
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 384.97059123320928 UG/KG

TOTAL # DATA = 26
DETECTS = 11
NONDETECTS = 15
DETECT FREQ = 42.31 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = BENZO(a)PYRENE

MAX DETECT = 750.0000000000 UG/KG
MIN DETECT = 120.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 358.4615384615 UG/KG
STD DEV = 122.9662964635941 UG/KG
UCL = 405.7282610877133S UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8990543432912658
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 334.9838311822364 UG/KG
GEO STD DEV = 1.480414949211 UG/KG
GEOMET UCL = 335.5528843685150S UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8604702341027466
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 384.97059123320928 UG/KG

TOTAL # DATA = 26
DETECTS = 12
NONDETECTS = 14
DETECT FREQ = 46.15 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZO(b)FLUORANTHENE

MAX DETECT = 810.0000000000 UG/KG
MIN DETECT = 180.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 368.4615384615 UG/KG
STD DEV = 113.7031326167S7 UG/KG
UCL = 412.1676155484680l UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7855945498393518
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 353.8698745870620 UG/KG
GEO STD DEV = 1.322014505229 UG/KG
GEOMET UCL = 354.3780406027717O UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8967391479010827
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 11
NONDETECTS = 15
DETECT FREQ = 42.31 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZO(ghi)PERYLENE

MAX DETECT = 350.0000000000 UG/KG
MIN DETECT = 82.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 320.0769230769 UG/KG
STD DEV = 102.17704285797 UG/KG
UCL = 359.35251359984187 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8422134272949729
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 296.6339639772693 UG/KG
GEO STD DEV = 1.547589660326 UG/KG
GEOMET UCL = 297.22883828650015 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7501317060310839
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 350.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 364.97039123320928 UG/KG

TOTAL # DATA = 26
DETECTS = 8
NONDETECTS = 18
DETECT FREQ = 30.77 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZO(k)FLUORANTHENE

MAX DETECT = 740.0000000000 UG/KG
MIN DETECT = 120.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 361.5384615385 UG/KG
STD DEV = 115.781369156644 UG/KG
UCL = 406.04338703287777 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8840739935669835
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 342.1218915599895 UG/KG
GEO STD DEV = 1.416570241584 UG/KG
GEOMET UCL = 342.66640963052056 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8747914571541225
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 10
NONDETECTS = 16
DETECT FREQ = 38.46 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BENZOIC ACID

MAX NONDET = 2300.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.41770239289 UG/KG
UCL = 1956.6058511080879 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.76938482884621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.6384413300355 UG/KG
GEO STD DEV = 1.1196853669579 UG/KG
GEOMET UCL = 1850.1173379459233 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.78868125010823915
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.0924181056722 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = BENZYL ALCOHOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.33333333333 UG/KG
STD DEV = 45.074893585321 UG/KG
UCL = 402.61218576778800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.72257205600000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.88250718009700 UG/KG
GEO STD DEV = 1.1175360922871 UG/KG
GEOMET UCL = 381.36048526225659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.74034462870366260
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.90924181056721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = BIS(2-CHLOROETHOXY)METHANE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037186 2 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554 43 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343 6853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BIS(2-CHLOROETHYL)ETHER

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037186 2 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554 43 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343 6853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BIS(2-CHLOROISOPROPYL)ETHER

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037 1862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554 43 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BIS(2-ETHYLHEXYL)PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 46.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 325.9615384615 UG/KG
STD DEV = 125.4218974775 29 UG/KG
UCL = 374.17216373972008 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7618220068999437
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 280.5967116193 88 UG/KG
GEO STD DEV = 1.934510638523 UG/KG
GEOMET UCL = 281.3403135690 1693 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6466641083297735
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = BUTYL BENZYL PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037182 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550553443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9783315343685S3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = CHRYSENE

MAX DETECT = 790.0000000000 UG/KG
MIN DETECT = 120.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 375.3846153846 UG/KG
STD DEV = 138.5982231329S7 UG/KG
UCL = 428.6600571802310 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9293306399932231
TEST STAT = 0.920
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 347.842389852094 UG/KG
GEO STD DEV = 1.508454925524 UG/KG
GEOMET UCL = 348.4222125814135 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9083934501228478
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 414.91117369962785 UG/KG

TOTAL # DATA = 26
DETECTS = 14
NONDETECTS = 12
DETECT FREQ = 53.85 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = Di-n-BUTYL PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 40.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 318.1538461538 UG/KG
STD DEV = 199.5919030089986 UG/KG
UCL = 371.8112462380640 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7162758415612518
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 251.8244803645141 UG/KG
GEO STD DEV = 2.349800814055 UG/KG
GEOMET UCL = 292.7277146989750 6 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.5920712300770602
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = Di-n-OCTYL PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037186 2 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554 43 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9783315343 6853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = DIBENZO(a,h)ANTHRACENE

MAX DETECT = 92.0000000000 UG/KG
MIN DETECT = 43.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 332.2800000000 UG/KG
STD DEV = 124.340989219163 UG/KG
UCL = 381.021667779911187 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7253128064978661
TEST STAT = 0.918
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 284.016024266662 UG/KG
GEO STD DEV = 1.999366036922 UG/KG
GEOMET UCL = 284.799775753133552 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.5941727441151772
TEST STAT = 0.918
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.000000000000000 UG/KG

TOTAL # DATA = 25
DETECTS = 4
NONDETECTS = 21
DETECT FREQ = 16.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 25

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = DIBENZOFURAN

MAX DETECT = 86.0000000000 UG/KG
MIN DETECT = 37.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 355.1153846154 UG/KG
STD DEV = 94.6825980777462 UG/KG
UCL = 391.510203606980072 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6631779123619066
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 326.002677355011 UG/KG
GEO STD DEV = 1.69861403523S4 UG/KG
GEOMET UCL = 326.655603568480I0 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.471310464596396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 2
NONDETECTS = 24
DETECT FREQ = 7.69 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = DIELDRIN

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.93266838677 UG/KG
UCL = 19.0121245081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.739782594637622
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.1750779771038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.5997462482184 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.739372576719406 5
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = DIETHYL PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.692307692 3 UG/KG
STD DEV = 42.1816303718 62 UG/KG
UCL = 393.906404404127 50 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.671762220999068 5
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.531955055443 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.978331534368 53 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.690878098383539 6
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.000000000000 00 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = DIMETHYL PHTHALATE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163057 1862 UG/KG
UCL = 993.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.671762220999068 5
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505544 03 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97833153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.690878098353596
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDOSULFAN I

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948 3274
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.07784259784 2 UG/KG
GEO STD DEV = 1.102653587010 UG/KG
GEOMET UCL = 9.50168899120820 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827286074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949709912 33209 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDOSULFAN II

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.93266838677 UG/KG
UCL = 19.0121245808173 1 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.739782594637622 1
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.1750779710 38 UG/KG
GEO STD DEV = 1.10479175109 6 UG/KG
GEOMET UCL = 18.5997462482 1844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.739372576719 4065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.0000000000 0000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDOSULFAN SULFATE

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.93266838677 UG/KG
UCL = 19.0121245808173 1 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.739782594637622 1
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.1750779710 38 UG/KG
GEO STD DEV = 1.10479175109 6 UG/KG
GEOMET UCL = 18.5997462482 1844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.739372576719 4065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.0000000000 0000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEPTACHLOR

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948327 4
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.10265358701 0 UG/KG
GEOMET UCL = 9.501688991208 20 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827238 6074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949703912332 09 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEPTACHLOR EPOXIDE

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948327 4
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.10265358701 0 UG/KG
GEOMET UCL = 9.501688991208 20 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827238 6074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949703912332 09 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEXACHLOROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037182 UG/KG
UCL = 393.9064440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554643 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343685S3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEXACHLOROBUTADIENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037182 UG/KG
UCL = 393.9064440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554643 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343685S3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDRIN

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.932668388677 UG/KG
UCL = 19.01212458081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376221
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.175077971038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.599746248211844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7593725767194065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = ENDRIN KETONE

MAX NONDET = 23.0000000000 UG/KG
MIN NONDET = 16.0000000000 UG/KG
STD NONDET = 17.0000000000 UG/KG

MEAN = 18.2692307692 UG/KG
STD DEV = 1.932668388677 UG/KG
UCL = 19.01212458081731 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7397825946376221
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 18.175077971038 UG/KG
GEO STD DEV = 1.104791751096 UG/KG
GEOMET UCL = 18.599746248211844 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7593725767194065
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 17.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 18.000000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = FLUORANTHENE

MAX DETECT = 1900.0000000000 UG/KG
MIN DETECT = 240.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 627.3076923077 UG/KG
STD DEV = 410.7924582888833 UG/KG
UCL = 785.2112296641905? UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7528013446964419
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 535.4274506388420 UG/KG
GEO STD DEV = 1.693003811530 UG/KG
GEOMET UCL = 536.0782203526320? UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9024128054188656
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 470.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 639.9407824664185? UG/KG

TOTAL # DATA = 26
DETECTS = 17
NONDETECTS = 9
DETECT FREQ = 65.38 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = FLUORENE

MAX DETECT = 230.0000000000 UG/KG
MIN DETECT = 54.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 333.1153846154 UG/KG
STD DEV = 113.8204817772860 UG/KG
UCL = 376.8665926570907 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7896062202718855
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 298.9283469611474 UG/KG
GEO STD DEV = 1.735600448186 UG/KG
GEOMET UCL = 299.5954929547696 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8617730005210869
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.0000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 5
NONDETECTS = 21
DETECT FREQ = 19.23 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = HEXACHLOROCYCLOPENTADIENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505543 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = HEXACHLOROETHANE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.181630371862 UG/KG
UCL = 393.90640440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.55195505543 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.97853153436853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = INDENO(1,2,3-cd)PYRENE

MAX DETECT = 250.0000000000 UG/KG
MIN DETECT = 88.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 305.5384615385 UG/KG
STD DEV = 115.2860091482229 UG/KG
UCL = 349.8529767737878717 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8994458561094781
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 276.9271443653871 UG/KG
GEO STD DEV = 1.425513887657 UG/KG
GEOMET UCL = 277.5519717863422 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8318942297347449
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 350.0000000000 UG/KG . QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 10
NONDETECTS = 16
DETECT FREQ = 38.46 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = ISOPHORONE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037186 UG/KG
UCL = 393.9064440412750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622280990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554403 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343685853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = METHOXYCHLOR

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790504735 UG/KG
UCL = 94.87007065878156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.7784259784 19 UG/KG
GEO STD DEV = 1.1026533587010 UG/KG
GEOMET UCL = 91.20227237178570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.49709912333093 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = N-NITROSO-Di-n-PROPYLAMINE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037 1862 UG/KG
UCL = 393.9064044041 2750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6717622203990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554 63 UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343 6853 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835396
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = N-NITROSODIPHENYLAMINE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 377.6923076923 UG/KG
STD DEV = 42.18163037862 UG/KG
UCL = 393.9064044012750 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8717622209990685
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 375.5519550554G UG/KG
GEO STD DEV = 1.109756015347 UG/KG
GEOMET UCL = 375.9785315343685S UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6908780983835996
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = NAPHTHALENE

MAX DETECT = 110.0000000000 UG/KG
MIN DETECT = 110.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 368.0769230769 UG/KG
STD DEV = 66.56513471603I UG/KG
UCL = 393.66373710962569 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6862125024057699
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 358.811045312111 UG/KG
GEO STD DEV = 1.294650859677 UG/KG
GEOMET UCL = 359.30869307341140 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.5192431257588381
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 370.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 1
NONDETECTS = 25
DETECT FREQ = 3.85 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = NITROBENZENE

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489358552l UG/KG
UCL = 402.61218376778800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.36048526225659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.90924181056721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = PENTACHLOROPHENOL

MAX NONDET = 2300.0000000000 UG/KG
MIN NONDET = 1600.0000000000 UG/KG
STD NONDET = 1700.0000000000 UG/KG

MEAN = 1861.9047619048 UG/KG
STD DEV = 221.415770239289 UG/KG
UCL = 1956.60585110808779 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7693848288621672
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1849.638441330035 UG/KG
GEO STD DEV = 1.119683669579 UG/KG
GEOMET UCL = 1850.11733794592533 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7886812501082315
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1800.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1849.09241810567232 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = PHENANTHRENE

MAX DETECT = 1600.0000000000 UG/KG
MIN DETECT = 150.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 499.2307692308 UG/KG
STD DEV = 314.3359677028896 UG/KG
UCL = 620.0576252675628 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7428573770896614
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 430.950919698667 UG/KG
GEO STD DEV = 1.687229658977 UG/KG
GEOMET UCL = 451.99946989989254 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9230654622840719
TEST STAT = 0.920
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 380.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 470.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 15
NONDETECTS = 11
DETECT FREQ = 57.69 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = PHENOL

MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 340.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 383.3333333333 UG/KG
STD DEV = 45.07489585521 UG/KG
UCL = 402.61218376778800 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7225720560000027
TEST STAT = 0.908
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 380.882507180097 UG/KG
GEO STD DEV = 1.117536092871 UG/KG
GEOMET UCL = 381.36048526225659 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7403446287036626
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 360.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 374.90924181056721 UG/KG

TOTAL # DATA = 21
DETECTS = 0
NONDETECTS = 21
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

CHEMICAL = PYRENE

MAX DETECT = 1800.0000000000 UG/KG
MIN DETECT = 220.0000000000 UG/KG
MAX NONDET = 470.0000000000 UG/KG
MIN NONDET = 350.0000000000 UG/KG
STD NONDET = 350.0000000000 UG/KG

MEAN = 590.7692307692 UG/KG
STD DEV = 373.918163371891 UG/KG
UCL = 734.498745483881899 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7164490805519771
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 512.781139293709 UG/KG
GEO STD DEV = 1.636226007661 UG/KG
GEOMET UCL = 513.41008432254557 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8713180685953418
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 460.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 550.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 15
NONDETECTS = 11
DETECT FREQ = 57.69 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = TOXAPHENE

MAX NONDET = 230.0000000000 UG/KG
MIN NONDET = 86.0000000000 UG/KG
STD NONDET = 170.0000000000 UG/KG

MEAN = 179.46153846615 UG/KG
STD DEV = 26.767130775278 UG/KG
UCL = 189.75049228485472 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7783769400227954
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 177.049038373406 UG/KG
GEO STD DEV = 1.19119088572 UG/KG
GEOMET UCL = 177.50691740983245 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8785637812719958
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 170.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 180.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = alpha-BHC

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.8000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.9467790304 UG/KG
UCL = 9.4870706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.70810026694833274
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.0778425978842 UG/KG
GEO STD DEV = 1.1026533587010 UG/KG
GEOMET UCL = 9.5016889912080820 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.73334782272980074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.9497099123320309 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = alpha-CHLORDANE

MAX NONDET = 110.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 86.0000000000 UG/KG

MEAN = 91.2307692308 UG/KG
STD DEV = 9.467790304735 UG/KG
UCL = 94.870070658778156 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.70810026694833162
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 90.778425978419 UG/KG
GEO STD DEV = 1.1026533587010 UG/KG
GEOMET UCL = 91.202272371778570 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.73334782272381465
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 87.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 89.497099123320993 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = beta-BHC

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948327 4
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.102653587010 UG/KG
GEOMET UCL = 9.501688991208 20 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827238 6074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949703912332 09 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = delta-BHC

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.48700706587816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.708100266948327 4
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.102653587010 UG/KG
GEOMET UCL = 9.501688991208 20 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.733347827238 6074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949703912332 09 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = gamma-BHC (LINDANE)

MAX NONDET = 11.0000000000 UG/KG
MIN NONDET = 8.1000000000 UG/KG
STD NONDET = 8.6000000000 UG/KG

MEAN = 9.1230769231 UG/KG
STD DEV = 0.946779030474 UG/KG
UCL = 9.487007065877816 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7081002669483274
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 9.077842597842 UG/KG
GEO STD DEV = 1.1026533587010 UG/KG
GEOMET UCL = 9.501688991203820 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7333478272986074
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 8.7000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 8.949709912333209 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

CHEMICAL = gamma-CHLORDANE

MAX NONDET = 170.0000000000 UG/KG
MIN NONDET = 81.0000000000 UG/KG
STD NONDET = 110.0000000000 UG/KG

MEAN = 94.46153846153 UG/KG
STD DEV = 17.79851067501 2 UG/KG
UCL = 101.5030657061468 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.5979195227529562
TEST STAT = 0.920
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 93.18915174032 28 UG/KG
GEO STD DEV = 1.167142215099 UG/KG
GEOMET UCL = 93.63778576427624 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.5796917446434735
TEST STAT = 0.920
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 88.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 90.00000000000000 UG/KG

TOTAL # DATA = 26
DETECTS = 0
NONDETECTS = 26
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 26

SURFACE SOIL - METALS AND INORGANICS - 8/13/92

CHEMICAL = ALUMINUM

MAX DETECT = 27600000.0000000000 UG/KG
MIN DETECT = 6370000.0000000000 UG/KG

MEAN = 13175806.4516129028 UG/KG
STD DEV = 4420104.92810320575 UG/KG
UCL = 14731800.0415928476 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.929909135718235 9
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 12510618.1186137516 UG/KG
GEO STD DEV = 1.375933070734 UG/KG
GEOMET UCL = 12510618.6029785052 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.987503455909107 2
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 12000000.0000000000 UG/KG
MEDIAN UCL = 14091281.8151146844 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = AMMONIA

MAX DETECT = 4400.0000000000 UG/KG
MIN DETECT = 684.0000000000 UG/KG
MAX NONDET = 350.0000000000 UG/KG
MIN NONDET = 338.0000000000 UG/KG
STD NONDET = 338.0000000000 UG/KG

MEAN = 2028.19047619 05 UG/KG
STD DEV = 1094.94316525 8998 UG/KG
UCL = 2496.50540359470688 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.957034112572 6062
TEST STAT = 0.908
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 1671.247187341850 UG/KG
GEO STD DEV = 1.996737720961 UG/KG
GEOMET UCL = 1672.101206171782 45 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.905119435179 0508
TEST STAT = 0.908
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 2110.0000000000 UG/KG
MEDIAN UCL = 2524.546209052 83628 UG/KG

TOTAL # DATA = 21
DETECTS = 19
NONDETECTS = 2
DETECT FREQ = 90.48 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 21

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

```
CHEMICAL = ANTIMONY

 MAX DETECT =      9800.0000000000   UG/KG
 MIN DETECT =      9800.0000000000   UG/KG
 MAX NONDET =     12000.0000000000   UG/KG
 MIN NONDET =      8400.0000000000   UG/KG
 STD NONDET =      8400.0000000000   UG/KG

     MEAN =      9370.9677419355   UG/KG
   STD DEV =      1091.962881440248   UG/KG
      UCL =      9755.367495256765 32   UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
 NORMAL STAT =        0.7402363508080246
  TEST STAT =        0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

   GEO MEAN =      9313.347743374923   UG/KG
 GEO STD DEV =        1.114544541500   UG/KG
 GEOMET UCL =      9313.74009246856076   UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =        0.7700936588898464
  TEST STAT =        0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

    MEDIAN =      8950.0000000000   UG/KG   QUALIFIER = U
 MEDIAN UCL =      9245.64090755734287   UG/KG

TOTAL # DATA =       31
  # DETECTS =        1
# NONDETECTS =       30
 DETECT FREQ =       3.23  %

# NONDETECTS > 2x NONDETECT MINIMUM =        0
TOTAL # STATISTICAL DATA =       31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND
```

```
CHEMICAL = ARSENIC

 MAX DETECT =      8500.0000000000   UG/KG
 MIN DETECT =      3000.0000000000   UG/KG

     MEAN =      5087.0967741935   UG/KG
   STD DEV =      1049.959119168493   UG/KG
      UCL =      5456.71009463303471   UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
 NORMAL STAT =        0.9493422585111648
  TEST STAT =        0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

   GEO MEAN =      4983.548661691378   UG/KG
 GEO STD DEV =        1.224620125697   UG/KG
 GEOMET UCL =      4983.97976029576330   UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT =        0.9801344459265937
  TEST STAT =        0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

    MEDIAN =      4950.0000000000   UG/KG
 MEDIAN UCL =      5500.00000000000000   UG/KG

TOTAL # DATA =       31
  # DETECTS =       31
# NONDETECTS =        0
 DETECT FREQ =      100.00  %

# NONDETECTS > 2x NONDETECT MINIMUM =        0
TOTAL # STATISTICAL DATA =       31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND
```

CHEMICAL = BARIUM

MAX DETECT = 291000.0000000000 UG/KG
MIN DETECT = 64000.0000000000 UG/KG

MEAN = 159925.8064516129 UG/KG
STD DEV = 44658.532167071695 UG/KG
UCL = 175646.78840117 4039 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9736020047054828
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 153635.07399249 1380 UG/KG
GEO STD DEV = 1.3358830171 36 UG/KG
GEOMET UCL = 153635.54425857 0008 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9752059419202934
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 152500.0000000000 UG/KG
MEDIAN UCL = 173738.454453440529 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = BERYLLIUM

MAX DETECT = 6200.0000000000 UG/KG
MIN DETECT = 550.0000000000 UG/KG

MEAN = 1010.9677419355 UG/KG
STD DEV = 968.318645363920 UG/KG
UCL = 1351.84146094262292 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.3585855677444014
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 868.729924511549 UG/KG
GEO STD DEV = 1.539398164688 UG/KG
GEOMET UCL = 869.27183329327283 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7127721333574092
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 805.0000000000 UG/KG
MEDIAN UCL = 958.25636302293685 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = CADMIUM

MAX DETECT = 1300.0000000000 UG/KG
MIN DETECT = 710.0000000000 UG/KG
MAX NONDET = 860.0000000000 UG/KG
MIN NONDET = 600.0000000000 UG/KG
STD NONDET = 600.0000000000 UG/KG

MEAN = 733.9285714286 UG/KG
STD DEV = 155.0425740653035 UG/KG
UCL = 791.3570704512892 4 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7724653836976755
TEST STAT = 0.924
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 720.2251055318532 UG/KG
GEO STD DEV = 1.2054672516102 UG/KG
GEOMET UCL = 720.6716168571299 1 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8293046357250200
TEST STAT = 0.924
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 650.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 826.8567256968659 6 UG/KG

TOTAL # DATA = 28
DETECTS = 6
NONDETECTS = 22
DETECT FREQ = 21.43 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 28

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = CALCIUM

MAX DETECT = 5820000.0000000000 UG/KG
MIN DETECT = 4160000.0000000000 UG/KG

MEAN = 10346451.61290322582 UG/KG
STD DEV = 7471216.400675541 72 UG/KG
UCL = 12976516.96807864 65 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7698931945393517
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 8522982.619826534 76 UG/KG
GEO STD DEV = 1.8054835 14373 UG/KG
GEOMET UCL = 8522983.255404582 94 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9196771423964639
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 7895000.0000000000 UG/KG
MEDIAN UCL = 10154151.79149775 39 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = CESIUM

MAX DETECT = 4400.0000000000 UG/KG
MIN DETECT = 1500.0000000000 UG/KG

MEAN = 2677.4193548387 UG/KG
STD DEV = 720.084975908133 UG/KG
UCL = 2930.90827082123906 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.938605120821994?
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 2586.470806679567 UG/KG
GEO STD DEV = 1.298678432321 UG/KG
GEOMET UCL = 2586.927975762429?2 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.977228356844742?
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 2550.0000000000 UG/KG
MEDIAN UCL = 2891.28181511468458 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = CHROMIUM

MAX DETECT = 80500.0000000000 UG/KG
MIN DETECT = 8400.0000000000 UG/KG

MEAN = 21290.3225806452 UG/KG
STD DEV = 17847.135034178449 UG/KG
UCL = 27572.9851337726250 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.565338987240257?
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 17565.799651797312 UG/KG
GEO STD DEV = 1.713590858141 UG/KG
GEOMET UCL = 17566.402881004418? UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.805872621819864?
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 15200.0000000000 UG/KG
MEDIAN UCL = 17345.6409075573429 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = COBALT

MAX DETECT = 11700.0000000000 UG/KG
MIN DETECT = 5200.0000000000 UG/KG

MEAN = 7829.0322580645 UG/KG
STD DEV = 1557.9543138746?4 UG/KG
UCL = 8377.473294035777?14 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.943591781513?862
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 7682.937330634808 UG/KG
GEO STD DEV = 1.211945352227 UG/KG
GEOMET UCL = 7683.363967384?1990 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.97542999529?2273
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 7400.0000000000 UG/KG
MEDIAN UCL = 8182.563630229?6876 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = COPPER

MAX DETECT = 181000.0000000000 UG/KG
MIN DETECT = 14200.0000000000 UG/KG

MEAN = 25125.8064516129 UG/KG
STD DEV = 29610.3618278?7263 UG/KG
UCL = 35549.4352908660?58 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.3556473678177803
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 20230.869237890289 UG/KG
GEO STD DEV = 1.653085845835 UG/KG
GEOMET UCL = 20231.451167032166?3 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.6265005997018923
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 16650.0000000000 UG/KG
MEDIAN UCL = 19836.922722672025?0 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = IRON

MAX DETECT = 29700000.0000000000 UG/KG
MIN DETECT = 11600000.0000000000 UG/KG

MEAN = 16970967.7419354841 UG/KG
STD DEV = 3908402.32587369345 UG/KG
UCL = 18346828.5110896453 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.912952510991003 8
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 16568115.3090540189 UG/KG
GEO STD DEV = 1.23968460674 8 UG/KG
GEOMET UCL = 16568115.7454557177 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.963424533913737 9
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 16650000.0000000000 UG/KG
MEDIAN UCL = 18173845.4453440532 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = LEAD

MAX DETECT = 228000.0000000000 UG/KG
MIN DETECT = 7100.0000000000 UG/KG

MEAN = 38058.0645161290 UG/KG
STD DEV = 36840.1496809115 42 UG/KG
UCL = 51026.7694880263880 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.464624797412 5419
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 31335.8958763812 08 UG/KG
GEO STD DEV = 1.725425679002 UG/KG
GEOMET UCL = 31336.5032717576032 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.873885523896291 6
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 30400.0000000000 UG/KG
MEDIAN UCL = 36200.0000000000000 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = LITHIUM

MAX DETECT = 15000.0000000000 UG/KG
MIN DETECT = 4500.0000000000 UG/KG

MEAN = 9819.3548387097 UG/KG
STD DEV = 2817.7340879918610 UG/KG
UCL = 10811.271603217S304 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9649228882466144
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 9382.687831151447 UG/KG
GEO STD DEV = 1.365344048739 UG/KG
GEOMET UCL = 9383.168468270725S0 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9452113049419960
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 9300.0000000000 UG/KG
MEDIAN UCL = 11536.922726720268 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = MAGNESIUM

MAX DETECT = 5440000.0000000000 UG/KG
MIN DETECT = 2130000.0000000000 UG/KG

MEAN = 3227096.7741935486 UG/KG
STD DEV = 743605.8336021580619 UG/KG
UCL = 3488865.6528530409S UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9254720583727784
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 3146724.77797947219 UG/KG
GEO STD DEV = 1.249236522572 UG/KG
GEOMET UCL = 3146725.21774369804 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9507408071078181
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 3130000.0000000000 UG/KG
MEDIAN UCL = 3566512.72604587395 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = MANGANESE

MAX DETECT = 476000.0000000000 UG/KG
MIN DETECT = 145000.0000000000 UG/KG

MEAN = 295806.4516129032 UG/KG
STD DEV = 78252.45308524509 UG/KG
UCL = 323353.3803267953992 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9556517863198859
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 285781.1164110326821 UG/KG
GEO STD DEV = 1.301498367238 UG/KG
GEOMET UCL = 285781.5745728070008 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9815402622854633
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 280000.0000000000 UG/KG
MEDIAN UCL = 317282.0453778867122 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = MERCURY

MAX DETECT = 70.0000000000 UG/KG
MIN DETECT = 60.0000000000 UG/KG
MAX NONDET = 80.0000000000 UG/KG
MIN NONDET = 50.0000000000 UG/KG
STD NONDET = 60.0000000000 UG/KG

MEAN = 62.9032258065 UG/KG
STD DEV = 6.812487768369 UG/KG
UCL = 65.30140129590708 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8269201790134562
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 62.5337638995380 UG/KG
GEO STD DEV = 1.114957959584 UG/KG
GEOMET UCL = 62.92625852302311 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8243387360809220
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 60.0000000000 UG/KG QUALIFIER = U*
MEDIAN UCL = 70.00000000000000 UG/KG

TOTAL # DATA = 31
DETECTS = 4
NONDETECTS = 27
DETECT FREQ = 12.90 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = MOLYBDENUM

MAX DETECT = 5100.0000000000 UG/KG
MIN DETECT = 1600.0000000000 UG/KG
MAX NONDET = 1900.0000000000 UG/KG
MIN NONDET = 1500.0000000000 UG/KG
STD NONDET = 1500.0000000000 UG/KG

MEAN = 2534.4827586207 UG/KG
STD DEV = 988.651419365329 UG/KG
UCL = 2894.31515955089344 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8503559553470713
TEST STAT = 0.926
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 2373.402494109808 UG/KG
GEO STD DEV = 1.420862454240 UG/KG
GEOMET UCL = 2373.91963527633652 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9230920559888767
TEST STAT = 0.926
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 2250.0000000000 UG/KG
MEDIAN UCL = 2600.00000000000000 UG/KG

TOTAL # DATA = 29
DETECTS = 24
NONDETECTS = 5
DETECT FREQ = 82.76 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 29

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = NICKEL

MAX DETECT = 101000.0000000000 UG/KG
MIN DETECT = 10000.0000000000 UG/KG

MEAN = 21632.2580645161 UG/KG
STD DEV = 19173.711625081614 UG/KG
UCL = 28381.9105886143807 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.5116764315539230
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 17923.409339508082 UG/KG
GEO STD DEV = 1.670922573286 UG/KG
GEOMET UCL = 17923.9975483528215 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7369740578537082
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 15550.0000000000 UG/KG
MEDIAN UCL = 17882.5636302293678 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

== HOTSPOT ANALYSIS ==
NO HOTSPOTS FOUND

CHEMICAL = NITRATE/NITRITE

MAX DETECT = 3830.0000000000 UG/KG
MIN DETECT = 340.0000000000 UG/KG
MAX NONDET = 279.0000000000 UG/KG
MIN NONDET = 265.0000000000 UG/KG
STD NONDET = 265.0000000000 UG/KG

MEAN = 1668.7037037037 UG/KG
STD DEV = 1127.387041719983 UG/KG
UCL = 2093.956548888875015 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.918333529455766 3
TEST STAT = 0.923
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1217.963672716364 UG/KG
GEO STD DEV = 2.397006582791 UG/KG
GEOMET UCL = 1218.867828814969022 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.900434763320753 30
TEST STAT = 0.923
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1610.0000000000 UG/KG
MEDIAN UCL = 2097.523581107974688 UG/KG

TOTAL # DATA = 27
DETECTS = 24
NONDETECTS = 3
DETECT FREQ = 88.89 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 27

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = OIL AND GREASE

MAX DETECT = 381.0000000000 UG/KG
MIN DETECT = 70.0000000000 UG/KG

MEAN = 169.6666666667 UG/KG
STD DEV = 63.940944976161 UG/KG
UCL = 199.205876181571128 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.836265436454126
TEST STAT = 0.897
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 159.643649377018 UG/KG
GEO STD DEV = 1.411916847538 UG/KG
GEOMET UCL = 160.295921682230010 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.951062020326573 3
TEST STAT = 0.897
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 161.0000000000 UG/KG
MEDIAN UCL = 183.0000000000 UG/KG

TOTAL # DATA = 18
DETECTS = 18
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 18

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = POTASSIUM

MAX DETECT = 4600000.0000000000 UG/KG
MIN DETECT = 1730000.0000000000 UG/KG

MEAN = 3000645.1612903224 UG/KG
STD DEV = 620878.3345773587793 UG/KG
UCL = 3219210.721265471S4 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.932340479S149656
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 2937830.594245810O6 UG/KG
GEO STD DEV = 1.229615290606 UG/KG
GEOMET UCL = 2937831.027102844432 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9475131613987827
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 2885000.0000000000 UG/KG
MEDIAN UCL = 3153897.270580279I8 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = SELENIUM

MAX DETECT = 750.0000000000 UG/KG
MIN DETECT = 200.0000000000 UG/KG
MAX NONDET = 500.0000000000 UG/KG
MIN NONDET = 200.0000000000 UG/KG
STD NONDET = 210.0000000000 UG/KG

MEAN = 306.0000000000 UG/KG
STD DEV = 127.895790913280 UG/KG
UCL = 351.76692099933607 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7747557891180307
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 285.9050001782221 UG/KG
GEO STD DEV = 1.4179854631817 UG/KG
GEOMET UCL = 286.41241974827130 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8648469293644444
TEST STAT = 0.927
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 260.0000000000 UG/KG
MEDIAN UCL = 344.70724254202509 UG/KG

TOTAL # DATA = 31
DETECTS = 16
NONDETECTS = 15
DETECT FREQ = 51.61 %

NONDETECTS > 2x NONDETECT MINIMUM = 1
TOTAL # STATISTICAL DATA = 30

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = SILICON

MAX DETECT = 1560000.0000000000 UG/KG
MIN DETECT = 81000.0000000000 UG/KG

MEAN = 463554.8387096774 UG/KG
STD DEV = 394950.030190598511 UG/KG
UCL = 602587.672847095411 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8496553161159791
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 313574.140248816868 UG/KG
GEO STD DEV = 2.525895087771 UG/KG
GEOMET UCL = 313575.029430551105 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9138235015382906
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 389000.0000000000 UG/KG
MEDIAN UCL = 506128.181511468429 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = SILVER

MAX NONDET = 1400.0000000000 UG/KG
MIN NONDET = 1000.0000000000 UG/KG
STD NONDET = 1100.0000000000 UG/KG

MEAN = 1116.1290322581 UG/KG
STD DEV = 132.218719560769 UG/KG
UCL = 1162.67351105626312 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6826118226428564
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1109.003724119840 UG/KG
GEO STD DEV = 1.117008746154 UG/KG
GEOMET UCL = 1109.39694067855089 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.7086901008911797
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 1100.0000000000 UG/KG QUALIFIER = U
MEDIAN UCL = 1100.000000000000000 UG/KG

TOTAL # DATA = 31
DETECTS = 0
NONDETECTS = 31
DETECT FREQ = 0.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

CHEMICAL = SODIUM

MAX DETECT = 362000.0000000000 UG/KG
MIN DETECT = 70200.0000000000 UG/KG

MEAN = 157729.0322580645 UG/KG
STD DEV = 76959.3365337087731 UG/KG
UCL = 184820.7498266221788 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8359144726377271
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 143499.777074018581 UG/KG
GEO STD DEV = 1.5305930877707 UG/KG
GEOMET UCL = 142500.522923708678 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9421461447522753
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 138300.0000000000 UG/KG
MEDIAN UCL = 157969.227226720279 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = STRONTIUM

MAX DETECT = 104000.0000000000 UG/KG
MIN DETECT = 25300.0000000000 UG/KG

MEAN = 54329.0322580645 UG/KG
STD DEV = 20612.6361737458586 UG/KG
UCL = 61585.2241995496791 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9233800725536222
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 50703.0570199188672 UG/KG
GEO STD DEV = 1.4485330755389 UG/KG
GEOMET UCL = 50703.5669610609257 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9739342126177905
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 48050.0000000000 UG/KG
MEDIAN UCL = 60821.5363960321571 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = THALLIUM

MAX DETECT = 510.0000000000 UG/KG
MIN DETECT = 210.0000000000 UG/KG
MAX NONDET = 290.0000000000 UG/KG
MIN NONDET = 200.0000000000 UG/KG
STD NONDET = 200.0000000000 UG/KG

MEAN = 277.41935483871 UG/KG
STD DEV = 80.880945638177 UG/KG
UCL = 305.89158291103926 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.7932182882955812
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 267.8706649320030 UG/KG
GEO STD DEV = 1.287885189505 UG/KG
GEOMET UCL = 288.52403450856674 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8707648738470809
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 245.0000000000 UG/KG
MEDIAN UCL = 280.00000000000000 UG/KG

TOTAL # DATA = 31
DETECTS = 21
NONDETECTS = 10
DETECT FREQ = 67.74 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = TIN

MAX DETECT = 85900.0000000000 UG/KG
MIN DETECT = 28300.0000000000 UG/KG
MAX NONDET = 38100.0000000000 UG/KG
MIN NONDET = 27300.0000000000 UG/KG
STD NONDET = 27300.0000000000 UG/KG

MEAN = 43712.9032258065 UG/KG
STD DEV = 13488.866183861364 UG/KG
UCL = 48461.34012105107496 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.8864537668994171
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 41923.408258602220 UG/KG
GEO STD DEV = 1.325691681277 UG/KG
GEOMET UCL = 41923.87493570616497 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9547251433894330
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 39000.0000000000 UG/KG
MEDIAN UCL = 47873.845445340499 UG/KG

TOTAL # DATA = 31
DETECTS = 24
NONDETECTS = 7
DETECT FREQ = 77.42 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = VANADIUM

MAX DETECT = 69600.0000000000 UG/KG
MIN DETECT = 26600.0000000000 UG/KG

MEAN = 40348.3870967742 UG/KG
STD DEV = 9894.2756656022323 UG/KG
UCL = 43831.4332805172822 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.951316770676196D
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 39235.227664749626 UG/KG
GEO STD DEV = 1.262763744818 UG/KG
GEOMET UCL = 39235.672190914629D UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9691332829185619
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 39150.0000000000 UG/KG
MEDIAN UCL = 43467.1772435895036 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = ZINC

MAX DETECT = 182000.0000000000 UG/KG
MIN DETECT = 52900.0000000000 UG/KG

MEAN = 77406.4516129032 UG/KG
STD DEV = 30278.257241831099 UG/KG
UCL = 88065.1972649596137 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.695620550142269S
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 73279.086859661664 UG/KG
GEO STD DEV = 1.358336666512 UG/KG
GEOMET UCL = 73279.5650300174802 UG/KG
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.8120660975458430
TEST STAT = 0.929
DISTRIBUTION IS NOT LOGNORMAL - LOGNORMAL STAT < TEST STAT

MEDIAN = 65050.0000000000 UG/KG
MEDIAN UCL = 75829.73626855522216 UG/KG

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

SURFACE SOIL - RADIONUCLIDES - 8/13/92

CHEMICAL = AMERICIUM-241

MAX DETECT = 1.9440000000 PCI/G
MIN DETECT = 0.0226400000 PCI/G
MAX NONDET = 0.0137200000 PCI/G
MIN NONDET = 0.0129300000 PCI/G
STD NONDET = 0.0129300000 PCI/G

MEAN = 0.3527425806 PCI/G
STD DEV = 0.461522705715 PCI/G
UCL = 0.495210755555124 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6630660015237949
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.159977677943 PCI/G
GEO STD DEV = 3.5789333416878 PCI/G
GEOMET UCL = 1.41585669579604 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9803455721099333
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 0.1358000000 PCI/G
MEDIAN UCL = 0.254219981578 95 PCI/G

TOTAL # DATA = 31
DETECTS = 29
NONDETECTS = 2
DETECT FREQ = 93.55 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = PLUTONIUM-239/240

MAX DETECT = 12.9900000000 PCI/G
MIN DETECT = 0.0676900000 PCI/G

MEAN = 2.3075596774 PCI/G
STD DEV = 3.358916284068 PCI/G
UCL = 3.489986857837 43 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.6650620266994459
TEST STAT = 0.929
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 0.866745209581 PCI/G
GEO STD DEV = 4.392822173157 PCI/G
GEOMET UCL = 2.413134549773 97 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9530404821422153
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 0.7032500000 PCI/G
MEDIAN UCL = 1.797635264307 35 PCI/G

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

--- HOTSPOT ANALYSIS ---
NO HOTSPOTS FOUND

CHEMICAL = RADIUM-226

MAX DETECT = 1.2590000000 PCI/G
MIN DETECT = 0.6471000000 PCI/G

MEAN = 0.9498233333 PCI/G
STD DEV = 0.1424664977412 PCI/G
UCL = 1.0008037707676476 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9863403196113002
TEST STAT = 0.927
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 0.938805139915 PCI/G
GEO STD DEV = 1.1670580182258 PCI/G
GEOMET UCL = 1.3564314872191! PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9753000980465597
TEST STAT = 0.927
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 0.9634000000 PCI/G
MEDIAN UCL = 1.0257333612712710 PCI/G

TOTAL # DATA = 30
DETECTS = 30
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = RADIUM-228

MAX DETECT = 3.0540000000 PCI/G
MIN DETECT = 1.3280000000 PCI/G

MEAN = 1.9128666667 PCI/G
STD DEV = 0.3999862248088 PCI/G
UCL = 2.0345291830486O PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9265019021105430
TEST STAT = 0.927
DISTRIBUTION IS NOT NORMAL - NORMAL STAT < TEST STAT

GEO MEAN = 1.883001727242 PCI/G
GEO STD DEV = 1.184149134163 PCI/G
GEOMET UCL = 2.3087440528335 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9727545314633794
TEST STAT = 0.927
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 1.9250000000 PCI/G
MEDIAN UCL = 2.0076486910504S PCI/G

TOTAL # DATA = 30
DETECTS = 30
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 30

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = URANIUM-233,-234

MAX DETECT = 1.6620000000 PCI/G
MIN DETECT = 0.6781000000 PCI/G

MEAN = 1.1655967742 PCI/G
STD DEV = 0.237557115012 PCI/G
UCL = 1.2492231827861 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9690337571922361
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 1.140140451617 PCI/G
GEO STD DEV = 1.239107357108 PCI/G
GEOMET UCL = 1.5763389438O590 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9518062569780011
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 1.2035000000 PCI/G
MEDIAN UCL = 1.25719486352901 PCI/G

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = URANIUM-235

MAX DETECT = 0.1220000000 PCI/G
MIN DETECT = 0.0525600000 PCI/G
MAX NONDET = 0.0875600000 PCI/G
MIN NONDET = -0.0058100000 PCI/G
STD NONDET = -0.0058100000 PCI/G

MEAN = 0.0797146667 PCI/G
STD DEV = 0.021345509088 PCI/G
UCL = 0.090516984691 94 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9172618956194448
TEST STAT = 0.881
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 0.088767467029 PCI/G
GEO STD DEV = 1.279296730133 PCI/G
GEOMET UCL = 0.73618093796906 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9298531070060735
TEST STAT = 0.881
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 0.0790400000 PCI/G
MEDIAN UCL = 0.0904700000 PCI/G

TOTAL # DATA = 31
DETECTS = 15
NONDETECTS = 16
DETECT FREQ = 48.39 %

NONDETECTS > 2x NONDETECT MINIMUM = 16
TOTAL # STATISTICAL DATA = 15

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

CHEMICAL = URANIUM-238

MAX DETECT = 2.1990000000 PCI/G
MIN DETECT = 0.8257000000 PCI/G

MEAN = 1.2667451613 PCI/G
STD DEV = 0.3312818827042 PCI/G
UCL = 1.3833610758992 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - NORMAL DISTRIBUTION
NORMAL STAT = 0.9787641356037349
TEST STAT = 0.929
DISTRIBUTION IS NORMAL - NORMAL STAT > TEST STAT

GEO MEAN = 1.222923173540 PCI/G
GEO STD DEV = 1.309299204479 PCI/G
GEOMET UCL = 1.6838310485050S2 PCI/G
SHAPIRO AND WILK GOODNESS-OF-FIT TEST - LOGNORMAL DISTRIBUTION
LOGNORM STAT = 0.9821077315300593
TEST STAT = 0.929
DISTRIBUTION IS LOGNORMAL - LOGNORMAL STAT > TEST STAT

MEDIAN = 1.3405000000 PCI/G
MEDIAN UCL = 1.4316922726720 PCI/G

TOTAL # DATA = 31
DETECTS = 31
NONDETECTS = 0
DETECT FREQ = 100.00 %

NONDETECTS > 2x NONDETECT MINIMUM = 0
TOTAL # STATISTICAL DATA = 31

=== HOTSPOT ANALYSIS ===
NO HOTSPOTS FOUND

APPENDIX B

BACKGROUND COMPARISON STATISTICS

EQUALITY OF VARIANCE

F Test

The F test is used to assess whether variances in different data sets are equal or unequal. Unequal variances indicate a significant difference between the means of different data sets. The F Test is performed on two data sets (background and site data) as follows:

1) Compute the factor V_B

$$V_B = \sum_{j=1}^{a} N_j (\bar{X}_j - \bar{X})^2$$

where: a = total number of data sets (=2)
N_j = sample size in each data set
$\bar{X}_j$ = mean of each data set
$\bar{X}$ = overall mean of all the data sets

2) Compute the factor V

$$V = \sum_{J=1}^{a} \sum_{K=1}^{N_j} (X_{JK} - \bar{X})^2$$

where: X_{JK} = value of the Kth datapoint in the Jth dataset

3) Compute the factor V_w.

$$V_w = V - V_B$$

4) Compute the factors S^2_B and S^2_W

$$S_B^2 = \frac{V_B}{a - 1}$$

where: N = total number of data points in all of the data sets

$$S_w^2 = \frac{V_w}{N - a}$$

5) Compute the F statistic.

$$F = \frac{S_B^2}{S_w^2}$$

6) Calculate the degrees of freedom in the numerator (υ_1) and denominator (V_2) of the F formula using the following:

$$\upsilon_1 = a - 1$$

$$\upsilon_2 = N - a$$

7) Find the 95th percentile value ($F_{0.95}$) (described in Spiegel 1988, Statistics 2nd Ed., Appendix V). If the F value exceeds $F_{0.95}$, the variances of the data sets are not equal.

Bartlett's Test of Homogeneity of Variances

Bartlett's test is used for assessing whether a number of population variances of normal distributions are equal. The procedure is performed as follows:

1) Compute the sample variances for the background data (S^2_1) and for the sample data (S^2_2). The sample variance is the square of the sample standard deviation and is given by the following equation:

$$S^2 = \sum_{i=1}^{n} (X_i - \bar{X})/(n - 1)$$

where:

n = sample size
X_i = value of the i_{th} data point
$\bar{X}$ = mean of the data set

2) Compute the test statistic X^2 using the following:

$$X^2 = f \ln(S_p^2) - \sum_{i=1}^{k} f_i \ln(S_i^2)$$

where:

$$f = \sum_{i=1}^{k} f_i = \left[\sum_{i=1}^{k} n_i\right] - k$$

and:

$$S_p^2 = \frac{1}{f} \sum_{i=1}^{k} f_i S_i$$

k = number of data sets being compared (=2)
n_i = sample size of each data set
n_1 = background data sample size
n_2 = sample data size
f_i = degree of freedom for each variance, $n_i - 1$

3) Determine the significance level of X^2 with K-1 (=1) degrees of freedom from appropriate table (i.e. Table 1, Appendix B in Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities) (EPA 1989). If the significance level is less than 0.05, then the variances are not equal.

Analysis of variance is used to determine whether there is a significant difference between the background and sample means. Unequal variances show that there is a significant difference between background and standard data.

NONPARAMETRIC TECHNIQUE

The Mann-Whitney U test (also known as the Wilcoxin Rank Sum) consists of the following steps:

(1) Combine concentrations from both site data and background data on a chemical-specific basis. Assign each value (concentration) a rank.[1]

(2) Calculate the sum of the ranks for each of the samples. List these sums by R_1 and R_2, where N_1 and N_2, are the respective sample sizes. A significant difference between the rank sums R_1 and R_2, implies a significant difference between the samples.

(3) Calculate the difference between the rank sums using the statistic:

$$U = N_1 N_2 + \frac{N_1 (N_1 + 1)}{2} - R_1 \qquad (4)$$

(4) Convert the U statistic to the Z statistic, which can be compared to standard normal and lognormal distribution curves as follows:

$$Z = \frac{U - \mu_u}{\sigma_u} \qquad (5)$$

(5) Use the Z statistic to show a significant difference between the site and background concentrations at the 0.10 level.

To assess whether two populations exhibit significant statistical differences, the sample statistic, Z, is computed from the ranks of the populations. The probability, p, is then found from the Z value using a cumulative normal distribution table (e.g., Table A1, Gilbert, 1987). The significance level, α, for a one-tailed probability test is then computed using the following:

$$\alpha = 1 - p$$

If the resulting value exceeds 0.10, then the populations do not demonstrate a significant difference and are considered statistically equal.

---

[1] If two or more sample values are identical, the sample values are each assigned a rank equal to the mean of the ranks that would otherwise be assigned. These are called ties.

```
USE SS-V
COPY TO CHEM01.DBF FOR CHEMICAL = "ACENAPHTHENE "
COPY TO CHEM02.DBF FOR CHEMICAL = "ANTHRACENE "
COPY TO CHEM03.DBF FOR CHEMICAL = "AROCLOR-1254 "
COPY TO CHEM04.DBF FOR CHEMICAL = "BENZO(a)ANTHRACENE "
COPY TO CHEM05.DBF FOR CHEMICAL = "BENZO(a)PYRENE "
COPY TO CHEM06.DBF FOR CHEMICAL = "BENZO(b)FLUORANTHENE "
COPY TO CHEM07.DBF FOR CHEMICAL = "BENZO(ghi)PERYLENE "
COPY TO CHEM08.DBF FOR CHEMICAL = "BENZO(k)FLUORANTHENE "
COPY TO CHEM09.DBF FOR CHEMICAL = "CHRYSENE "
COPY TO CHEM10.DBF FOR CHEMICAL = "DIBENZO(a,h)ANTHRACENE "
COPY TO CHEM11.DBF FOR CHEMICAL = "DIBENZOFURAN "
COPY TO CHEM12.DBF FOR CHEMICAL = "FLUORANTHENE "
COPY TO CHEM13.DBF FOR CHEMICAL = "FLUORENE "
COPY TO CHEM14.DBF FOR CHEMICAL = "INDENO(1,2,3-cd)PYRENE "
COPY TO CHEM15.DBF FOR CHEMICAL = "PHENANTHRENE "
COPY TO CHEM16.DBF FOR CHEMICAL = "PYRENE "
USE SS-M
COPY TO CHEM17.DBF FOR CHEMICAL = "ALUMINUM "
COPY TO CHEM18.DBF FOR CHEMICAL = "AMMONIA "
COPY TO CHEM19.DBF FOR CHEMICAL = "ARSENIC "
COPY TO CHEM20.DBF FOR CHEMICAL = "BARIUM "
COPY TO CHEM21.DBF FOR CHEMICAL = "BERYLLIUM "
COPY TO CHEM22.DBF FOR CHEMICAL = "CADMIUM "
COPY TO CHEM23.DBF FOR CHEMICAL = "CALCIUM "
COPY TO CHEM24.DBF FOR CHEMICAL = "CESIUM "
COPY TO CHEM25.DBF FOR CHEMICAL = "CHROMIUM "
COPY TO CHEM26.DBF FOR CHEMICAL = "COBALT "
COPY TO CHEM27.DBF FOR CHEMICAL = "COPPER "
COPY TO CHEM28.DBF FOR CHEMICAL = "IRON "
COPY TO CHEM29.DBF FOR CHEMICAL = "LEAD "
COPY TO CHEM30.DBF FOR CHEMICAL = "LITHIUM "
COPY TO CHEM31.DBF FOR CHEMICAL = "MAGNESIUM "
COPY TO CHEM32.DBF FOR CHEMICAL = "MANGANESE "
COPY TO CHEM33.DBF FOR CHEMICAL = "MERCURY "
COPY TO CHEM34.DBF FOR CHEMICAL = "MOLYBDENUM "
COPY TO CHEM35.DBF FOR CHEMICAL = "NICKEL "
COPY TO CHEM36.DBF FOR CHEMICAL = "NITRATE/NITRITE "
COPY TO CHEM37.DBF FOR CHEMICAL = "OIL AND GREASE "
COPY TO CHEM38.DBF FOR CHEMICAL = "POTASSIUM "
COPY TO CHEM39.DBF FOR CHEMICAL = "SELENIUM "
COPY TO CHEM40.DBF FOR CHEMICAL = "SILICON "
COPY TO CHEM41.DBF FOR CHEMICAL = "SODIUM "
COPY TO CHEM42.DBF FOR CHEMICAL = "STRONTIUM "
COPY TO CHEM43.DBF FOR CHEMICAL = "THALLIUM "
COPY TO CHEM44.DBF FOR CHEMICAL = "TIN "
COPY TO CHEM45.DBF FOR CHEMICAL = "VANADIUM "
COPY TO CHEM46.DBF FOR CHEMICAL = "ZINC "
USE SS-R
COPY TO CHEM47.DBF FOR CHEMICAL = "AMERICIUM-241 "
COPY TO CHEM48.DBF FOR CHEMICAL = "PLUTONIUM-239/240 "
COPY TO CHEM49.DBF FOR CHEMICAL = "RADIUM-226 "
COPY TO CHEM50.DBF FOR CHEMICAL = "RADIUM-228 "
COPY TO CHEM51.DBF FOR CHEMICAL = "URANIUM-233,-234 "
COPY TO CHEM52.DBF FOR CHEMICAL = "URANIUM-235 "
COPY TO CHEM53.DBF FOR CHEMICAL = "URANIUM-238 "
```

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->     SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->     INPUT PROGRAM.
->     DATA LIST FILE = chem01.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem01.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->     IF (FIRST EQ 'N') SOURCE=1.
->     IF (FIRST NE 'N') SOURCE=0.
->     SET BLANKS=0.
->     END INPUT PROGRAM.
->     TEMPORARY.
->     SELECT IF (FIRST EQ 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 2
16:16:18  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          326.731          S.E. Mean      23.716
Std Dev       120.926          Variance     14623.165
Kurtosis         .671          S.E. Kurt        .887
Skewness       -1.187          S.E. Skew        .456
Range         425.000          Minimum     45.0000000
Maximum    470.0000000          Sum          8495.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 3
16:16:18  DATA/BACKGROUND ANALYSIS


Preceding task required .16 seconds CPU time;  1.00 seconds elapsed.

->     TEMPORARY.
->     SELECT IF (FIRST NE 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 4
16:16:18 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 5
16:16:18 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 6
16:16:19 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	11734.2699	11734.2699	.9565	.3357
WITHIN GROUPS	31	380321.9725	12268.4507		
TOTAL	32	392056.2424			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	326.7308	120.9263	23.7156	277.8876 TO 375.5740
TOTAL	33	336.5152	110.6877	19.2682	297.2670 TO 375.7633
FIXED EFFECTS MODEL		110.7630	19.2814	297.1905	TO 375.8398
RANDOM EFFECTS MODEL			19.2814	91.5222	TO 581.5081

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -48.4285

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	45.0000	470.0000
TOTAL	45.0000	480.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 7
16:16:19 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8561, P = .001 (Approx.)
Bartlett-Box F = 4.993 , P = .026
Maximum Variance / Minimum Variance 5.951

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 8
16:16:19 DATA/BACKGROUND ANALYSIS

Proceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 9
16:16:20 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
17.93	7 SOURCE = .00
16.75	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
84.5	125.5	.7796	-.2890	.7726

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 10
16:16:20 DATA/BACKGROUND ANALYSIS

Proceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem02.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem02.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 11
16:16:23  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          332.462          S.E. Mean      22.694
Std Dev       115.718          Variance     13390.738
Kurtosis        1.253          S.E. Kurt        .887
Skewness       -1.318          S.E. Skew        .456
Range         423.000          Minimum     47.0000000
Maximum    470.0000000          Sum          8644.000

Valid observations -      26     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 12
16:16:24  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 13
16:16:24 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 14
16:16:24 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 15
16:16:25 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	8999.6510	8999.6510	.7982	.3785
WITHIN GROUPS	31	349511.3187	11274.5587		
TOTAL	32	358510.9697			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	332.4615	115.7184	22.6942	285.7219 TO 379.2012
TOTAL	33	341.0303	105.8464	18.4255	303.4988 TO 378.5618
FIXED EFFECTS MODEL		106.1817	18.4839	303.3322	TO 378.7284
RANDOM EFFECTS MODEL			18.4839	106.1706	TO 575.8900

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -206.2416

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	47.0000	470.0000
TOTAL	47.0000	480.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 16
16:16:25 DATA/BACKGROUND ANALYSIS

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8450, P = .002 (Approx.)
Bartlett-Box F = 4.594 , P = .032
Maximum Variance / Minimum Variance 5.450

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 17
16:16:25 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 18
16:16:27 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
17.93	7 SOURCE = .00
16.75	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
84.5	125.5	.7796	-.2890	.7726

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 19
16:16:27 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem03.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem03.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 20
16:16:29  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          235.000          S.E. Mean      41.124
Std Dev       209.690          Variance     43970.000
Kurtosis       19.655          S.E. Kurt        .887
Skewness        4.335          S.E. Skew        .456
Range        1030.000          Minimum    170.0000000
Maximum   1200.0000000          Sum         6110.000

Valid observations -     26     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 21
16:16:29  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 22
16:16:30 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	180.000	S.E. Mean	8.729
Std Dev	23.094	Variance	533.333
Kurtosis	5.166	S.E. Kurt	1.587
Skewness	2.160	S.E. Skew	.794
Range	70.000	Minimum	160.0000000
Maximum	230.0000000	Sum	1260.000

Valid observations - 7 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 23
16:16:30 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0.1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 24
16:16:31 DATA/BACKGROUND ANALYSIS

----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	16683.3333	16683.3333	.4691	.4985
WITHIN GROUPS	31	1102450.000	35562.9032		
TOTAL	32	1119133.333			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	180.0000	23.0940	8.7287	158.6417 TO 201.3583
Grp 1	26	235.0000	209.6902	41.1236	150.3043 TO 319.6957
TOTAL	33	223.3333	187.0105	32.5543	157.0223 TO 289.6444
FIXED EFFECTS MODEL		188.5813	32.8278		156.3806 TO 290.2861
RANDOM EFFECTS MODEL			32.8278		-193.7831 TO 640.4498

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1711.6094

GROUP	MINIMUM	MAXIMUM
Grp 0	160.0000	230.0000
Grp 1	170.0000	1200.0000
TOTAL	160.0000	1200.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 25
16:16:31 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9880, P = .000 (Approx.)
Bartlett-Box F = 19.189 , P = .000
Maximum Variance / Minimum Variance 82.444

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 26
16:16:31 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 27
16:16:32 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
14.36	7 SOURCE = .00
17.71	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
72.5	100.5	.4238	-.8655	.3868

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 28
16:16:32 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem04.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem04.dat

Variable   Rec   Start    End       Format

FIRST       1      1      3        A3
CONC        1      4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 29
16:16:35  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          374.615          S.E. Mean      27.990
Std Dev       142.723          Variance     20369.846
Kurtosis        3.239          S.E. Kurt        .887
Skewness        1.127          S.E. Skew        .456
Range         690.000          Minimum    140.0000000
Maximum    830.0000000          Sum          9740.000

Valid observations -      26      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 30
16:16:35  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 31
16:16:36 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 32
16:16:36 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 33
16:16:37 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	17.0496	17.0496	.0010	.9749
WITHIN GROUPS	31	523989.0110	16902.8713		
TOTAL	32	524006.0606			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	374.6154	142.7230	27.9903	316.9683 TO 432.2624
TOTAL	33	374.2424	127.9656	22.2759	328.8678 TO 419.6170
FIXED EFFECTS MODEL		130.0110	22.6320		328.0841 TO 420.4007
RANDOM EFFECTS MODEL			22.6320		86.6755 TO 661.8094

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1530.8575

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	140.0000	830.0000
TOTAL	140.0000	830.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 34
16:16:37 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8924, P = .000 (Approx.)
Bartlett-Box F = 6.569 , P = .011
Maximum Variance / Minimum Variance 8.290

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 35
16:16:37 DATA/BACKGROUND ANALYSIS

Preceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 36
16:16:39 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
16.79	7	SOURCE = .00
17.06	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
89.5	117.5	.9485	-.0664	.9470

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 37
16:16:39 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->      SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->      INPUT PROGRAM.
->      DATA LIST FILE = chem05.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem05.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->      IF (FIRST EQ 'N') SOURCE=1.
->      IF (FIRST NE 'N') SOURCE=0.
->      SET BLANKS=0.
->      END INPUT PROGRAM.
->      TEMPORARY.
->      SELECT IF (FIRST EQ 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->    /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 38
16:16:41  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          358.462          S.E. Mean      24.593
Std Dev       125.402          Variance    15725.538
Kurtosis        3.182          S.E. Kurt        .887
Skewness         .655          S.E. Skew        .456
Range         630.000          Minimum     120.0000000
Maximum    750.0000000          Sum          9320.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 39
16:16:41  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->      TEMPORARY.
->      SELECT IF (FIRST NE 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->    /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

----------O N E W A Y----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1142.9237	1142.9237	.0869	.7702
WITHIN GROUPS	31	407881.3187	13157.4619		
TOTAL	32	409024.2424			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	358.4615	125.4015	24.5933	307.8108 TO 409.1123
TOTAL	33	361.5152	113.0575	19.6808	321.4267 TO 401.6036
FIXED EFFECTS MODEL		114.7060	19.9677		320.7907 TO 402.2396
RANDOM EFFECTS MODEL			19.9677		107.8009 TO 615.2294

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1089.2301

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	120.0000	750.0000
TOTAL	120.0000	750.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 43
16:16:44 DATA/BACKGROUND ANALYSIS

-------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8649, P = .001 (Approx.)
Bartlett-Box F = 5.329 , P = .021
Maximum Variance / Minimum Variance 6.400

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 44
16:16:44 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; 2.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 45
16:16:44 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
17.43	7 SOURCE = .00
16.88	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
88.0	122.0	.9143	-.1327	.8944

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 46
16:16:44 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem06.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem06.dat

Variable   Rec   Start    End       Format

FIRST       1      1      3        A3
CONC        1      4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 47
16:16:48  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          368.462          S.E. Mean       22.741
Std Dev       115.955          Variance     13445.538
Kurtosis        8.049          S.E. Kurt         .887
Skewness        2.113          S.E. Skew         .456
Range         630.000          Minimum     180.0000000
Maximum    810.0000000          Sum          9580.000

Valid observations -      26      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 48
16:16:48  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 49
16:16:48 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 50
16:16:48 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 51
16:16:49 DATA/BACKGROUND ANALYSIS

----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	106.5601	106.5601	.0094	.9233
WITHIN GROUPS	31	350881.3187	11318.7522		
TOTAL	32	350987.8788			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	368.4615	115.9549	22.7406	321.6263 TO 415.2967
TOTAL	33	369.3939	104.7300	18.2312	332.2583 TO 406.5296
FIXED EFFECTS MODEL		106.3896	18.5201	331.6220	TO 407.1658
RANDOM EFFECTS MODEL			18.5201	134.0744	TO 604.7135

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1016.4899

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	180.0000	810.0000
TOTAL	180.0000	810.0000

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8455, P = .001 (Approx.)
Bartlett-Box F = 4.612 , P = .032
Maximum Variance / Minimum Variance 5.472

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
17.43	7 SOURCE = .00
16.88	26 SOURCE = 1.00
	33 Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
88.0	122.0	.9143	-.1330	.8942

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem07.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem07.dat

Variable  Rec  Start   End       Format

FIRST      1     1      3        A3
CONC       1     4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 56
16:16:53  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          320.077          S.E. Mean      20.435
Std Dev       104.201          Variance    10857.754
Kurtosis         .223          S.E. Kurt        .887
Skewness        -.907          S.E. Skew        .456
Range         388.000          Minimum     82.0000000
Maximum    470.0000000          Sum          8322.000

Valid observations -      26     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 57
16:16:53  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 58
16:16:54 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 59
16:16:54 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 60
16:16:55 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	15363.8422	15363.8422	1.6642	.2066
WITHIN GROUPS	31	286186.7033	9231.8291		
TOTAL	32	301550.5455			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	320.0769	104.2005	20.4354	277.9894 TO 362.1644
TOTAL	33	331.2727	97.0745	16.8985	296.8516 TO 365.6938
FIXED EFFECTS MODEL		96.0824	16.7258		297.1602 TO 365.3852
RANDOM EFFECTS MODEL			25.4923	7.3623	TO 655.1832

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 555.9243

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	82.0000	470.0000
TOTAL	82.0000	480.0000

---------- ONEWAY ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8155, P = .005 (Approx.)
Bartlett-Box F = 3.684 , P = .055
Maximum Variance / Minimum Variance 4.419

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
18.93	7	SOURCE = .00
16.48	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
77.5	132.5	.5603	-.6043	.5456

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem08.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem08.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 65
16:16:59  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          361.538          S.E. Mean      23.156
Std Dev       118.074          Variance     13941.538
Kurtosis        3.656          S.E. Kurt        .887
Skewness         .884          S.E. Skew        .456
Range         620.000          Minimum    120.0000000
Maximum   740.0000000          Sum           9400.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 66
16:16:59  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

Proceding task required .06 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	706.5601	706.5601	.0603	.8077
WITHIN GROUPS	31	363281.3187	11718.7522		
TOTAL	32	363987.8788			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	361.5385	118.0743	23.1563	313.8472 TO 409.2297
TOTAL	33	363.9394	106.6519	18.5657	326.1223 TO 401.7565
FIXED EFFECTS MODEL			108.2532	18.8445	325.5059 TO 402.3729
RANDOM EFFECTS MODEL				18.8445	124.4979 TO 603.3809

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -998.3581

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	120.0000	740.0000
TOTAL	120.0000	740.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 70
16:17:00 DATA/BACKGROUND ANALYSIS

------ ONEWAY ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8502, P = .001 (Approx.)
Bartlett-Box F = 4.775 , P = .029
Maximum Variance / Minimum Variance 5.674

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 71
16:17:00 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 72
16:17:02 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
17.36	7	SOURCE = .00
16.90	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
88.5	121.5	.9143	-.1109	.9117

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 73
16:17:02 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem09.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem09.dat

Variable  Rec  Start   End       Format

FIRST      1     1      3        A3
CONC       1     4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 74
16:17:06  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean        375.385          S.E. Mean      27.720
Std Dev     141.343          Variance     19977.846
Kurtosis      1.929          S.E. Kurt        .887
Skewness       .637          S.E. Skew        .456
Range       670.000          Minimum    120.0000000
Maximum  790.0000000          Sum          9760.000

Valid observations -      26      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 75
16:17:06  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 76
16:17:07 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 77
16:17:07 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 78
16:17:07 DATA/BACKGROUND ANALYSIS

-------- ----------O N E W A Y----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	35.2314	35.2314	.0021	.9635
WITHIN GROUPS	31	514189.0110	16586.7423		
TOTAL	32	514224.2424			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	375.3846	141.3430	27.7196	318.2949 TO 432.4743
TOTAL	33	374.8485	126.7656	22.0671	329.8994 TO 419.7976
FIXED EFFECTS MODEL		128.7895	22.4194	329.1239 TO 420.5731	
RANDOM EFFECTS MODEL			22.4194	89.9834 TO 659.7136	

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1500.5491

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	120.0000	790.0000
TOTAL	120.0000	790.0000

------- ---------- O N E W A Y ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8905, P = .000 (Approx.)
Bartlett-Box F = 6.474 , P = .011
Maximum Variance / Minimum Variance 8.131

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
15.57	7	SOURCE = .00
17.38	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
81.0	109.0	.6823	-.4424	.6582

Preceding task required .03 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem10.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem10.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 83
16:17:11  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       25.00

Variable  CONC

Mean          332.280          S.E. Mean      25.381
Std Dev       126.905          Variance    16104.877
Kurtosis        1.301          S.E. Kurt        .902
Skewness       -1.484          S.E. Skew        .464
Range         427.000          Minimum     43.0000000
Maximum    470.0000000             Sum        8307.000

Valid observations -      25     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 84
16:17:11  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 85
16:17:12 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 86
16:17:12 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 87
16:17:14 DATA/BACKGROUND ANALYSIS

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	9004.3216	9004.3216	.6732	.4184
WITHIN GROUPS	30	401259.8971	13375.3299		
TOTAL	31	410264.2187			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	25	332.2800	126.9050	25.3810	279.8962 TO 384.6638
TOTAL	32	341.1563	115.0406	20.3365	299.6797 TO 382.6328
FIXED EFFECTS MODEL		115.6518	20.4445		299.4029 TO 382.9096
RANDOM EFFECTS MODEL			20.4445		81.3839 TO 600.9286

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -399.6350

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	43.0000	470.0000
TOTAL	43.0000	480.0000

---------- ONEWAY ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8676, P = .001 (Approx.)
Bartlett-Box F = 5.422 , P = .020
Maximum Variance / Minimum Variance 6.554

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
16.36	7 SOURCE = .00
16.54	25 SOURCE = 1.00
	32 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
86.5	114.5	.9645	-.0461	.9632

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem11.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem11.dat

Variable  Rec  Start   End       Format

FIRST       1     1     3        A3
CONC        1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 92
16:17:17  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          355.115          S.E. Mean      18.937
Std Dev        96.558          Variance     9323.386
Kurtosis        6.059          S.E. Kurt        .887
Skewness       -2.188          S.E. Skew        .456
Range         433.000          Minimum     37.0000000
Maximum    470.0000000          Sum          9233.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 93
16:17:17  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 94
16:17:19 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 95
16:17:19 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; 2.00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 96
16:17:19 DATA/BACKGROUND ANALYSIS

------- ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1736.0042	1736.0042	.2172	.6445
WITHIN GROUPS	31	247827.5110	7994.4358		
TOTAL	32	249563.5152			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	355.1154	96.5577	18.9365	316.1149 TO 394.1159
TOTAL	33	358.8788	88.3112	15.3730	327.5650 TO 390.1926
FIXED EFFECTS MODEL		89.4116	15.5646		327.1347 TO 390.6229
RANDOM EFFECTS MODEL			15.5646		161.1123 TO 556.6452

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -567.3853

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	37.0000	470.0000
TOTAL	37.0000	480.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 97
16:17:19 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7914, P = .011 (Approx.)
Bartlett-Box F = 3.064 , P = .080
Maximum Variance / Minimum Variance 3.794

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 98
16:17:19 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 99
16:17:20 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
15.93	7 SOURCE = .00
17.29	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
83.5	111.5	.7467	-.3363	.7367

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 100
16:17:20 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem12.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem12.dat

Variable  Rec  Start   End      Format

FIRST      1     1      3       A3
CONC       1     4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 101
16:17:24  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          627.308          S.E. Mean      82.158
Std Dev       418.928          Variance    175500.462
Kurtosis        2.718          S.E. Kurt        .887
Skewness        1.812          S.E. Skew        .456
Range        1660.000          Minimum     240.0000000
Maximum   1900.0000000          Sum         16310.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 102
16:17:24  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 103
16:17:24 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 104
16:17:24 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 105
16:17:25 DATA/BACKGROUND ANALYSIS

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	357078.9377	357078.9377	2.5145	.1230
WITHIN GROUPS	31	4402254.396	142008.2063		
TOTAL	32	4759333.333			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	627.3077	418.9278	82.1585	458.0991 TO 796.5163
TOTAL	33	573.3333	385.6542	67.1338	436.5863 TO 710.0804
FIXED EFFECTS MODEL		376.8398	65.5994	439.5425 TO 707.1242	
RANDOM EFFECTS MODEL			131.4692	-1097.1408 TO 2243.8075	

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 19498.1707

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	240.0000	1900.0000
TOTAL	240.0000	1900.0000

------- ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9862, P = .000 (Approx.)
Bartlett-Box F = 18.355 , P = .000
Maximum Variance / Minimum Variance 71.425

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
10.07	7	SOURCE = .00
18.87	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
42.5	70.5	.0304	-2.1403	.0323

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->      SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->      INPUT PROGRAM.
->      DATA LIST FILE = chem13.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem13.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->      IF (FIRST EQ 'N') SOURCE=1.
->      IF (FIRST NE 'N') SOURCE=0.
->      SET BLANKS=0.
->      END INPUT PROGRAM.
->      TEMPORARY.
->      SELECT IF (FIRST EQ 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->   /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 110
16:17:30  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          333.115          S.E. Mean      22.764
Std Dev       116.075          Variance    13473.306
Kurtosis        1.024          S.E. Kurt        .887
Skewness       -1.295          S.E. Skew        .456
Range         416.000          Minimum     54.0000000
Maximum    470.0000000          Sum          8661.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 111
16:17:30  DATA/BACKGROUND ANALYSIS


Proceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->      TEMPORARY.
->      SELECT IF (FIRST NE 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->   /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 112
16:17:30 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 113
16:17:31 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; 1.00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 114
16:17:31 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	8710.6708	8710.6708	.7681	.3876
WITHIN GROUPS	31	351575.5110	11341.1455		
TOTAL	32	360286.1818			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	333.1154	116.0746	22.7641	286.2318 TO 379.9989
TOTAL	33	341.5455	106.1082	18.4711	303.9211 TO 379.1698
FIXED EFFECTS MODEL		106.4948	18.5384		303.7362 TO 379.3547
RANDOM EFFECTS MODEL			18.5384		105.9932 TO 577.0977

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -238.4771

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	54.0000	470.0000
TOTAL	54.0000	480.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 115
16:17:31 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8458, P = .001 (Approx.)
Bartlett-Box F = 4.622 , P = .032
Maximum Variance / Minimum Variance 5.483

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 116
16:17:31 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 117
16:17:33 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
17.36	7 SOURCE = .00
16.90	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
88.5	121.5	.9143	-.1112	.9114

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 118
16:17:33 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem14.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem14.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 119
16:17:36  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          305.538          S.E. Mean      23.057
Std Dev       117.569          Variance     13822.498
Kurtosis       -.834          S.E. Kurt        .887
Skewness       -.468          S.E. Skew        .456
Range         382.000          Minimum      88.0000000
Maximum     470.0000000          Sum          7944.000

Valid observations -      26     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 120
16:17:36  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 121
16:17:37 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 122
16:17:37 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 123
16:17:37 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	24993.5904	24993.5904	2.1504	.1526
WITHIN GROUPS	31	360305.3187	11622.7522		
TOTAL	32	385298.9091			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	305.5385	117.5691	23.0572	258.0513 TO 353.0257
TOTAL	33	319.8182	109.7296	19.1015	280.9097 TO 358.7266
FIXED EFFECTS MODEL		107.8089	18.7671		281.5424 TO 358.0940
RANDOM EFFECTS MODEL			34.0473		-112.7937 TO 752.4301

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 1212.1914

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	88.0000	470.0000
TOTAL	88.0000	480.0000

-------- ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8491, P = .001 (Approx.)
Bartlett-Box F = 4.737 , P = .030
Maximum Variance / Minimum Variance 5.625

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
19.79	7	SOURCE = .00
16.25	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
71.5	138.5	.3989	-.8633	.3880

Preceding task required .03 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem15.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem15.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 128
16:17:42  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          499.231          S.E. Mean      62.867
Std Dev       320.561          Variance    102759.385
Kurtosis        5.289          S.E. Kurt        .887
Skewness        2.197          S.E. Skew        .456
Range        1470.000          Minimum     130.0000000
Maximum   1600.0000000          Sum         12980.000

Valid observations -      26     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 129
16:17:42  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 130
16:17:42 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 131
16:17:42 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 132
16:17:43 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	88078.5881	88078.5881	1.0568	.3119
WITHIN GROUPS	31	2583727.473	83346.0475		
TOTAL	32	2671806.061			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	499.2308	320.5610	62.8672	369.7534 TO 628.7082
TOTAL	33	472.4242	288.9532	50.3003	369.9659 TO 574.8826
FIXED EFFECTS MODEL		288.6972	50.2557		369.9270 TO 574.9215
RANDOM EFFECTS MODEL			53.0215		-201.2772 TO 1146.1257

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 429.0490

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	130.0000	1600.0000
TOTAL	130.0000	1600.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 133
16:17:43 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9766, P = .000 (Approx.)
Bartlett-Box F = 15.279 , P = .000
Maximum Variance / Minimum Variance 41.821

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 134
16:17:43 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 135
16:17:45 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
13.14	7 SOURCE = .00
18.04	26 SOURCE = 1.00
	33 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
64.0	92.0	.2494	-1.1915	.2335

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 136
16:17:45 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem16.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem16.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 137
16:17:48  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       26.00

Variable  CONC

Mean          590.769          S.E. Mean       74.784
Std Dev       381.323          Variance     145407.385
Kurtosis        3.415          S.E. Kurt        .887
Skewness        1.976          S.E. Skew        .456
Range        1580.000          Minimum      220.0000000
Maximum   1800.0000000          Sum          15360.000

Valid observations -      26     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 138
16:17:48  DATA/BACKGROUND ANALYSIS


Procedding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 7.00

Variable CONC

Mean	372.857	S.E. Mean	18.736
Std Dev	49.570	Variance	2457.143
Kurtosis	5.008	S.E. Kurt	1.587
Skewness	2.175	S.E. Skew	.794
Range	140.000	Minimum	340.0000000
Maximum	480.0000000	Sum	2610.000

Valid observations - 7 Missing observations - 0

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	261890.7093	261890.7093	2.2243	.1460
WITHIN GROUPS	31	3649927.473	117739.5959		
TOTAL	32	3911818.182			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	7	372.8571	49.5696	18.7355	327.0132 TO 418.7011
Grp 1	26	590.7692	381.5252	74.7836	436.7495 TO 744.7890
TOTAL	33	544.5455	349.6345	60.8636	420.5704 TO 668.5205
FIXED EFFECTS MODEL				59.7316	422.7220 TO 666.3689
RANDOM EFFECTS MODEL				110.7623	-862.8230 TO 1951.9139

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 13068.6449

GROUP	MINIMUM	MAXIMUM
Grp 0	340.0000	480.0000
Grp 1	220.0000	1800.0000
TOTAL	220.0000	1800.0000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9834, P = .000 (Approx.)
Bartlett-Box F = 17.267 , P = .000
Maximum Variance / Minimum Variance 59.177

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
10.21	7	SOURCE = .00
18.83	26	SOURCE = 1.00
	33	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
43.5	71.5	.0343	-2.0981	.0359

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem17.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem17.dat

Variable  Rec  Start   End       Format

FIRST      1     1      3        A3
CONC       1     4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 146
16:17:53  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean      13175806.452          S.E. Mean    806997.059
Std Dev    4493169.464          Variance   2.01886E+13
Kurtosis       2.201            S.E. Kurt        .821
Skewness       1.193            S.E. Skew        .421
Range     21230000.000          Minimum   6370000.00000
Maximum   27600000.0000           Sum     408450000.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 147
16:17:53  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 148
16:17:55 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	14065454.545	S.E. Mean	1188273.280
Std Dev	3941056.619	Variance	1.55319E+13
Kurtosis	.672	S.E. Kurt	1.279
Skewness	.530	S.E. Skew	.661
Range	14380000.000	Minimum	7420000.00000
Maximum	21800000.0000	Sum	154720000.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 149
16:17:55 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 150
16:17:56 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	6.4260E+12	6.4260E+12	.3378	.5644
WITHIN GROUPS	40	7.6098E+14	1.9024E+13		
TOTAL	41	7.6740E+14			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	14065454.55	3941056.619	1188273.28	11417817.36 TO 16713091.73
Grp 1	31	13175806.45	4493169.464	806997.059	11527698.54 TO 14823914.36
TOTAL	42	13408809.52	4326330.165	667567.237	12060630.10 TO 14756988.95
FIXED EFFECTS MODEL		4361698.143	673024.635		12048575.96 TO 14769043.09
RANDOM EFFECTS MODEL			673024.635	48572	23.804 TO 21960395.24

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP	MINIMUM	MAXIMUM
Grp 0	7420000.000	21800000.00
Grp 1	6370000.000	27600000.00
TOTAL	6370000.000	27600000.00

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5652, P = .563 (Approx.)
Bartlett-Box F = .238 , P = .626
Maximum Variance / Minimum Variance 1.300

Preceding task required .07 seconds CPU time; 1.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
24.05	11	SOURCE = .00
20.60	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
142.5	264.5	.4287	-.8011	.4231

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem18.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem18.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 155
16:18:00  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       21.00

Variable  CONC

Mean        2028.190          S.E. Mean      244.837
Std Dev     1121.983          Variance    1258845.562
Kurtosis     -.294            S.E. Kurt       .972
Skewness      .408            S.E. Skew       .501
Range       4062.000          Minimum     338.0000000
Maximum   4400.0000000          Sum         42592.000

Valid observations -      21      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 156
16:18:00  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 9.00

Variable CONC

Mean	2147.667	S.E. Mean	700.593
Std Dev	2101.778	Variance	4417472.500
Kurtosis	.058	S.E. Kurt	1.400
Skewness	1.039	S.E. Skew	.717
Range	5785.000	Minimum	335.0000000
Maximum	6120.0000000	Sum	19329.000

Valid observations - 9 Missing observations - 0

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	89929.7286	89929.7286	.0416	.8398
WITHIN GROUPS	28	60516691.24	2161310.401		
TOTAL	29	60606620.97			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	9	2147.6667	2101.7784	700.5928	532.0984 TO 3763.2349
Grp 1	21	2028.1905	1121.9829	244.8367	1517.4700 TO 2538.9110
TOTAL	30	2064.0333	1445.6429	263.9371	1524.2214 TO 2603.8453
FIXED EFFECTS MODEL		1470.1396	268.4095		1514.2213 TO 2613.8454
RANDOM EFFECTS MODEL			268.4095		-1346.4320 TO 5474.4986

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -164395.2915

GROUP	MINIMUM	MAXIMUM
Grp 0	335.0000	6120.0000
Grp 1	338.0000	4400.0000
TOTAL	335.0000	6120.0000

---------- O N E W A Y ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7782, P = .025 (Approx.)
Bartlett-Box F = 4.880, P = .027
Maximum Variance / Minimum Variance 3.509

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
14.28	9	SOURCE = .00
16.02	21	SOURCE = 1.00
	30	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
83.5	128.5	.6248	-.4979	.6186

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem19.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem19.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 164
16:18:05  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean        5087.097              S.E. Mean      191.695
Std Dev     1067.315              Variance    1139161.290
Kurtosis       2.460              S.E. Kurt         .821
Skewness        .903              S.E. Skew         .421
Range       5500.000              Minimum    3000.0000000
Maximum     8500.0000000          Sum         157700.000

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 165
16:18:05  DATA/BACKGROUND ANALYSIS


Proceding task required .13 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 166
16:18:06 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	5745.455	S.E. Mean	595.035
Std Dev	1973.506	Variance	3894727.273
Kurtosis	-.610	S.E. Kurt	1.279
Skewness	.418	S.E. Skew	.661
Range	6100.000	Minimum	2600.0000000
Maximum	8700.0000000	Sum	63200.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 167
16:18:06 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 168
16:18:07 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	3519079.039	3519079.039	1.9250	.1730
WITHIN GROUPS	40	73122111.44	1828052.786		
TOTAL	41	76641190.48			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	5745.4545	1973.5063	595.0346	4419.6353 TO 7071.2738
Grp 1	31	5087.0968	1067.3150	191.6954	4695.6025 TO 5478.5911
TOTAL	42	5259.5238	1367.2225	210.9670	4833.4673 TO 5685.5803
FIXED EFFECTS MODEL			1352.0550	208.6266	4837.8737 TO 5681.1739
RANDOM EFFECTS MODEL				327.7224	1095.4172 TO 9423.6304

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 104139.4467

GROUP	MINIMUM	MAXIMUM
Grp 0	2600.0000	8700.0000
Grp 1	3000.0000	8500.0000
TOTAL	2600.0000	8700.0000

------ ----------O N E W A Y----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7737, P = .008 (Approx.)
Bartlett-Box F = 6.409 , P = .011
Maximum Variance / Minimum Variance 3.419

Preceding task required .07 seconds CPU time; 1.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
24.18	11	SOURCE = .00
20.55	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
141.0	266.0	.4123	-.8452	.3980

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem20.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem20.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 173
16:18:11  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       159925.806          S.E. Mean     8153.495
Std Dev     45396.740          Variance  2060863978.5
Kurtosis        1.184          S.E. Kurt         .821
Skewness         .618          S.E. Skew         .421
Range       227000.000          Minimum  64000.0000000
Maximum  291000.000000             Sum      4957700.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 174
16:18:11  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 175
16:18:12 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	204090.909	S.E. Mean	19135.619
Std Dev	63465.667	Variance	4027890909.1
Kurtosis	-.622	S.E. Kurt	1.279
Skewness	.719	S.E. Skew	.661
Range	186000.000	Minimum	138000.000000
Maximum	324000.000000	Sum	2245000.000

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 176
16:18:12 DATA/BACKGROUND ANALYSIS

Preceding task required .14 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 177
16:18:12 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	15836659411	15836659411	6.2041	.0170
WITHIN GROUPS	40	1.0210E+11	2552620711		
TOTAL	41	1.1794E+11			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	204090.9091	63465.6672	19135.6186	161454.1046 TO 246727.7136
Grp 1	31	159925.8065	45396.7397	8153.4952	143274.1474 TO 176577.4655
TOTAL	42	171492.8571	53634.1464	8275.9285	154779.2801 TO 188206.4342
FIXED EFFECTS MODEL			50523.4669	7795.9402	155736.6738 TO 187249.0404
RANDOM EFFECTS MODEL					23718.5303 -129879.536 TO 472865.2499

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 818078629.6343

GROUP	MINIMUM	MAXIMUM
Grp 0	138000.0000	324000.0000
Grp 1	64000.0000	291000.0000
TOTAL	64000.0000	324000.0000

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6615, P = .143 (Approx.)
Bartlett-Box F = 1.795 , P = .181
Maximum Variance / Minimum Variance 1.954

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
27.73	11	SOURCE = .00
19.29	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
102.0	305.0	.0508	-1.9597	.0500

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem21.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem21.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 182
16:18:16  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          1010.968          S.E. Mean      176.790
Std Dev        984.325          Variance    968895.699
Kurtosis        28.138          S.E. Kurt        .821
Skewness         5.194          S.E. Skew        .421
Range         5650.000          Minimum     550.0000000
Maximum    6200.0000000          Sum         31340.000

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 183
16:18:16  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 184
16:18:18 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	769.091	S.E. Mean	63.439
Std Dev	210.402	Variance	44269.091
Kurtosis	-.536	S.E. Kurt	1.279
Skewness	.428	S.E. Skew	.661
Range	660.000	Minimum	440.0000000
Maximum	1100.0000000	Sum	8460.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 185
16:18:18 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 186
16:18:19 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	475000.0279	475000.0279	.6439	.4271
WITHIN GROUPS	40	29509561.88	737739.0469		
TOTAL	41	29984561.90			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	769.0909	210.4022	63.4387	627.7408 TO 910.4410
Grp 1	31	1010.9677	984.3250	176.7900	649.9144 TO 1372.0211
TOTAL	42	947.6190	855.1788	131.9570	681.1266 TO 1214.1115
FIXED EFFECTS MODEL		858.9174	132.5338	679.7582 TO 1215.4799	
RANDOM EFFECTS MODEL			132.5338	-736.3823 TO 2631.6204	

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -16180.4088

GROUP	MINIMUM	MAXIMUM
Grp 0	440.0000	1100.0000
Grp 1	550.0000	6200.0000
TOTAL	440.0000	6200.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 187
16:18:19 DATA/BACKGROUND ANALYSIS

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9563, P = .000 (Approx.)
Bartlett-Box F = 19.415, P = .000
Maximum Variance / Minimum Variance 21.887

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 188
16:18:19 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 189
16:18:19 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
18.05	11 SOURCE = .00
22.73	31 SOURCE = 1.00
	42 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
152.5	198.5	.2815	-1.0883	.2765

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 190
16:18:19 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem22.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem22.dat

Variable  Rec  Start   End      Format

FIRST      1     1      3       A3
CONC       1     4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 191
16:18:22  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =      28.00

Variable  CONC

Mean          733.929          S.E. Mean      29.838
Std Dev       157.887          Variance     24928.439
Kurtosis        4.798          S.E. Kurt        .858
Skewness        1.896          S.E. Skew        .441
Range         700.000          Minimum      600.0000000
Maximum    1300.0000000          Sum        20550.000

Valid observations -     28     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 192
16:18:22  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	712.727	S.E. Mean	38.614
Std Dev	128.070	Variance	16401.818
Kurtosis	1.143	S.E. Kurt	1.279
Skewness	1.353	S.E. Skew	.661
Range	400.000	Minimum	600.0000000
Maximum	1000.0000000	Sum	7840.000

Valid observations - 11 Missing observations - 0

Preceding task required .06 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	3549.8585	3549.8585	.1569	.6943
WITHIN GROUPS	37	837086.0390	22623.9470		
TOTAL	38	840635.8974			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	712.7273	128.0696	38.6144	626.6890 TO 798.7656
Grp 1	28	733.9286	157.8874	29.8379	672.7062 TO 795.1509
TOTAL	39	727.9487	148.7347	23.8166	679.7345 TO 776.1629
FIXED EFFECTS MODEL		150.4126	24.0853		679.1473 TO 776.7502
RANDOM EFFECTS MODEL			24.0853		421.9162 TO 1033.9812

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1207.6127

GROUP	MINIMUM	MAXIMUM
Grp 0	600.0000	1000.0000
Grp 1	600.0000	1300.0000
TOTAL	600.0000	1300.0000

-------ONEWAY---------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6032, P = .370 (Approx.)
Bartlett-Box F = .576 , P = .448
Maximum Variance / Minimum Variance 1.520

Preceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
19.55	11	SOURCE = .00
20.18	28	SOURCE = 1.00
	39	Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
149.0	215.0	.8900	-.1569	.8754

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem23.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem23.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 200
16:18:27  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean      10346451.613          S.E. Mean  1364051.252
Std Dev    7594715.947          Variance   5.76797E+13
Kurtosis         5.168          S.E. Kurt         .821
Skewness         2.083          S.E. Skew         .421
Range     34040000.000          Minimum  4160000.00000
Maximum   38200000.0000             Sum    320740000.000

Valid observations -      31     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 201
16:18:27  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 202
16:18:28 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	6227272.727	S.E. Mean	991802.850
Std Dev	3289437.918	Variance	1.08204E+13
Kurtosis	1.329	S.E. Kurt	1.279
Skewness	1.534	S.E. Skew	.661
Range	9720000.000	Minimum	3880000.00000
Maximum	13600000.0000	Sum	68500000.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 203
16:18:28 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 204
16:18:30 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1.3776E+14	1.3776E+14	2.9971	.0911
WITHIN GROUPS	40	1.8386E+15	4.5965E+13		
TOTAL	41	1.9764E+15			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	6227272.727	3289437.918	991802.850	4017398.827 TO 8437146.627
Grp 1	31	10346451.61	7594715.947	1364051.25	7560687.240 TO 13132215.99
TOTAL	42	9267619.048	6942896.636	1071312.21	7104060.091 TO 11431178.00
FIXED EFFECTS MODEL		6779740.644	1046136.69	7153297.866	TO 11381940.23
RANDOM EFFECTS MODEL			2135863.93	-17871095.6	TO 36406333.65

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP MINIMUM MAXIMUM

Grp 0 3880000.000 13600000.00
Grp 1 4160000.000 38200000.00

TOTAL 3880000.000 38200000.00

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8420, P = .000 (Approx.)
Bartlett-Box F = 7.408 , P = .007
Maximum Variance / Minimum Variance 5.331

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
14.32	11	SOURCE = .00
24.05	31	SOURCE = 1.00
	42	Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
91.5	157.5	.0222	-2.2601	.0238

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem24.dat/ FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem24.dat

Variable   Rec   Start    End        Format

FIRST       1      1      3        A3
CONC        1      4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 209
16:18:34  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean        2677.419          S.E. Mean      131.469
Std Dev      731.988          Variance    535806.452
Kurtosis        .265          S.E. Kurt         .821
Skewness        .785          S.E. Skew         .421
Range       2900.000          Minimum    1500.0000000
Maximum   4400.0000000          Sum         83000.000

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 210
16:18:34  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 211
16:18:35 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	2318.182	S.E. Mean	98.920
Std Dev	328.080	Variance	107636.364
Kurtosis	-1.695	S.E. Kurt	1.279
Skewness	.260	S.E. Skew	.661
Range	1300.000	Minimum	1700.0000000
Maximum	3000.0000000	Sum	25500.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 212
16:18:35 DATA/BACKGROUND ANALYSIS

Preceding task required .06 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 213
16:18:35 DATA/BACKGROUND ANALYSIS

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1047776.149	1047776.149	2.4437	.1259
WITHIN GROUPS	40	17150557.18	428763.9296		
TOTAL	41	18198333.33			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	2318.1818	328.0798	98.9198	2097.7749 TO 2538.5888
Grp 1	31	2677.4194	731.9880	131.4689	2408.9240 TO 2945.9147
TOTAL	42	2583.3333	666.2295	102.8014	2375.7216 TO 2790.9451
FIXED EFFECTS MODEL		654.8007	101.0379	2379.1280	TO 2787.5386
RANDOM EFFECTS MODEL			183.2792	254.5511	TO 4912.1156

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 38120.9871

GROUP	MINIMUM	MAXIMUM
Grp 0	1700.0000	3000.0000
Grp 1	1500.0000	4400.0000
TOTAL	1500.0000	4400.0000

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8327, P = .001 (Approx.)
Bartlett-Box F = 6.905 , P = .009
Maximum Variance / Minimum Variance 4.978

Preceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
17.23	11	SOURCE = .00
23.02	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
123.5	189.5	.1815	-1.3493	.1773

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem25.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem25.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 218
16:18:40  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       21290.323          S.E. Mean     3258.426
Std Dev    18142.149          Variance  329137569.89
Kurtosis       6.238          S.E. Kurt        .821
Skewness       2.667          S.E. Skew        .421
Range      72100.000          Minimum   8400.0000000
Maximum   80500.0000000          Sum       660000.000

Valid observations -      31       Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 219
16:18:41  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	16290.909	S.E. Mean	1161.931
Std Dev	3853.688	Variance	14850909.091
Kurtosis	.053	S.E. Kurt	1.279
Skewness	-.091	S.E. Skew	.661
Range	13000.000	Minimum	9000.0000000
Maximum	22000.0000000	Sum	179200.000

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	202928574.2	202928574.2	.8099	.3735
WITHIN GROUPS	40	10022636188	250565904.7		
TOTAL	41	10225564762			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	16290.9091	3853.6877	1161.9306	13701.9671 TO 18879.8511
Grp 1	31	21290.3226	18142.1490	3258.4261	14635.7284 TO 27944.9167
TOTAL	42	19980.9524	15792.5305	2436.8404	15059.6533 TO 24902.2514
FIXED EFFECTS MODEL		15829.2737	2442.5100	15044.4555	TO 24917.4493
RANDOM EFFECTS MODEL			2442.5100	-11054.0680	TO 51015.9727

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -2933677.2431

GROUP	MINIMUM	MAXIMUM
Grp 0	9000.0000	22000.0000
Grp 1	8400.0000	80500.0000
TOTAL	8400.0000	80500.0000

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9568, P = .000 (Approx.)
Bartlett-Box F = 19.531 , P = .000
Maximum Variance / Minimum Variance 22.163

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
22.00	11	SOURCE = .00
21.32	31	SOURCE = 1.00
	42	Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
165.0	242.0	.8880	-.1574	.8749

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->     SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->     INPUT PROGRAM.
->     DATA LIST FILE = chem26.dat / FIRST 1-3 (A) CONC 4-28 (10).
```

This command will read 1 records from chem26.dat

Variable	Rec	Start	End	Format
FIRST	1	1	3	A3
CONC	1	4	28	F25.10

```
->     IF (FIRST EQ 'N') SOURCE=1.
->     IF (FIRST NE 'N') SOURCE=0.
->     SET BLANKS=0.
->     END INPUT PROGRAM.
->     TEMPORARY.
->     SELECT IF (FIRST EQ 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.
```

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable. Old style
>printing will be used instead.

There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 31.00

Variable CONC

Mean	7829.032	S.E. Mean	284.442
Std Dev	1583.707	Variance	2508129.032
Kurtosis	.128	S.E. Kurt	.821
Skewness	.774	S.E. Skew	.421
Range	6500.000	Minimum	0000000
Maximum	11700.0000000	Sum	42700.000

Valid observations - 31 Missing obser 0

Preceding task required .11 seconds CPU time; .0 is elapsed.

```
->     TEMPORARY.
->     SELECT IF (FIRST NE 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.
```

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable. Old style
>printing will be used instead.

There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 229
16:18:47 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	7727.273	S.E. Mean	551.707
Std Dev	1829.804	Variance	3348181.818
Kurtosis	1.640	S.E. Kurt	1.279
Skewness	1.317	S.E. Skew	.661
Range	6300.000	Minimum	5500.0000000
Maximum	11800.0000000	Sum	85000.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 230
16:18:47 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 231
16:18:49 DATA/BACKGROUND ANALYSIS

-------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	84072.7552	84072.7552	.0309	.8613
WITHIN GROUPS	40	108725689.1	2718142.229		
TOTAL	41	108809761.9			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	7727.2727	1829.8038	551.7066	6497.9941 TO 8956.5513
Grp 1	31	7829.0323	1583.7074	284.4422	7248.1237 TO 8409.9408
TOTAL	42	7802.3810	1629.0785	251.3723	7294.7244 TO 8310.0376
FIXED EFFECTS MODEL		1648.6789	254.3967	7288.2261 TO 8316.5358	
RANDOM EFFECTS MODEL			254.3967	4569.9658 TO 11034.7961	

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -162215.4221

GROUP	MINIMUM	MAXIMUM
Grp 0	5500.0000	11800.0000
Grp 1	5200.0000	11700.0000
TOTAL	5200.0000	11800.0000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5717, P = .524 (Approx.)
Bartlett-Box F = .316 , P = .574
Maximum Variance / Minimum Variance 1.335

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
20.68	11	SOURCE = .00
21.79	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
161.5	227.5	.7998	-.2577	.7966

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->      SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->      INPUT PROGRAM.
->      DATA LIST FILE = chem27.dat / FIRST 1-3 (A) CONC.4-28 (10).

This command will read 1 records from chem27.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->      IF (FIRST EQ 'N') SOURCE=1.
->      IF (FIRST NE 'N') SOURCE=0.
->      SET BLANKS=0.
->      END INPUT PROGRAM.
->      TEMPORARY.
->      SELECT IF (FIRST EQ 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->   /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 236
16:18:53  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       25125.806          S.E. Mean     5406.088
Std Dev    30099.822          Variance   905999311.83
Kurtosis      25.995          S.E. Kurt         .821
Skewness       4.956          S.E. Skew         .421
Range     166800.000          Minimum   14200.0000000
Maximum   181000.000000       Sum          778900.000

Valid observations -      31        Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 237
16:18:53  DATA/BACKGROUND ANALYSIS


Proceding task required .10 seconds CPU time;  .00 seconds elapsed.

->      TEMPORARY.
->      SELECT IF (FIRST NE 'N').
->      SET WIDTH=80.
->      DESCRIPTIVES VARIABLES=CONC
->   /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 238
16:18:54 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	16145.455	S.E. Mean	979.366
Std Dev	3248.188	Variance	10550727.273
Kurtosis	.564	S.E. Kurt	1.279
Skewness	.872	S.E. Skew	.661
Range	11000.000	Minimum	11200.0000000
Maximum	22200.0000000	Sum	177600.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 239
16:18:54 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 240
16:18:55 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	654774562.9	654774562.9	.9599	.3331
WITHIN GROUPS	40	27285486628	682137165.7		
TOTAL	41	27940261190			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	16145.4545	3248.1883	979.3656	13963.2925 TO 18327.6166
Grp 1	31	25125.8065	30099.8225	5406.0877	14085.1021 TO 36166.5108
TOTAL	42	22773.8095	26104.9763	4028.0853	14638.9260 TO 30908.6930
FIXED EFFECTS MODEL		26117.7558	4030.0572	14628.7599	TO 30918.8592
RANDOM EFFECTS MODEL			4030.0572	-28432.9040	TO 73980.5230

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -1685086.9747

GROUP	MINIMUM	MAXIMUM
Grp 0	11200.0000	22200.0000
Grp 1	14200.0000	181000.0000
TOTAL	11200.0000	181000.0000

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9885, P = .000 (Approx.)
Bartlett-Box F = 32.459 , P = .000
Maximum Variance / Minimum Variance 85.871

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
15.18	11	SOURCE = .00
23.74	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
101.0	167.0	.0473	-1.9891	.0467

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem28.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem28.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 245
16:18:59  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean     16970967.742          S.E. Mean   713573.373
Std Dev   3973008.394          Variance  1.57848E+13
Kurtosis      2.066          S.E. Kurt         .821
Skewness      1.225          S.E. Skew         .421
Range    18100000.000          Minimum  11600000.0000
Maximum  29700000.0000             Sum   526100000.000

Valid observations -      31     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 246
16:18:59  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 247
16:19:00 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	16827272.727	S.E. Mean	1170088.645
Std Dev	3880745.008	Variance	1.50602E+13
Kurtosis	.801	S.E. Kurt	1.279
Skewness	.842	S.E. Skew	.661
Range	13600000.000	Minimum	11300000.0000
Maximum	24900000.0000	Sum	185100000.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 248
16:19:00 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 249
16:19:01 DATA/BACKGROUND ANALYSIS

------- ----------O N E W A Y----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1.6764E+11	1.6764E+11	.0107	.9180
WITHIN GROUPS	40	6.2415E+14	1.5604E+13		
TOTAL	41	6.2431E+14			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	16827272.73	3880745.008	1170088.65	14220153.42 TO 19434392.03
Grp 1	31	16970967.74	3973008.394	713573.373	15513656.46 TO 18428279.02
TOTAL	42	16933333.33	3902198.671	602122.327	15717322.59 TO 18149344.07

FIXED EFFECTS MODEL 3950144.583 609520.542 15701446.33 TO 18165220.33

RANDOM EFFECTS MODEL 609520.542 9188643.329 TO 24678023.34

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP	MINIMUM	MAXIMUM
Grp 0	11300000.00	24900000.00
Grp 1	11600000.00	29700000.00
TOTAL	11300000.00	29700000.00

---------- O N E W A Y ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5117, P = .917 (Approx.)
Bartlett-Box F = .008 , P = .929
Maximum Variance / Minimum Variance 1.048

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
21.14	11	SOURCE = .00
21.63	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
166.5	232.5	.9103	-.1145	.9089

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem29.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem29.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 254
16:19:05  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       38058.065          S.E. Mean     6726.060
Std Dev    37449.119          Variance  1402436516.1
Kurtosis      23.718          S.E. Kurt        .821
Skewness       4.643          S.E. Skew        .421
Range     220900.000          Minimum   7100.0000000
Maximum   228000.000000           Sum      1179800.000

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 255
16:19:05  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 256
16:19:05 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	36309.091	S.E. Mean	1486.329
Std Dev	4929.595	Variance	24300909.091
Kurtosis	.455	S.E. Kurt	1.279
Skewness	-.408	S.E. Skew	.661
Range	17400.000	Minimum	26600.0000000
Maximum	44000.0000000	Sum	399400.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 257
16:19:05 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 258
16:19:06 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	24835425.22	24835425.22	.0235	.8790
WITHIN GROUPS	40	42316104575	1057902614		
TOTAL	41	42340940000			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	36309.0909	4929.5952	1486.3289	32997.3446 TO 39620.8372
Grp 1	31	38058.0645	37449.1190	6726.0603	24321.6164 TO 51794.5126
TOTAL	42	37600.0000	32135.7411	4958.6525	27585.7979 TO 47614.2021
FIXED EFFECTS MODEL			5018.7805	27456.6660	TO 47743.3340
RANDOM EFFECTS MODEL			5018.7805	-26169.6293	TO 101369.6293

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -63619973.5253

GROUP MINIMUM MAXIMUM

Grp 0 26600.0000 44000.0000
Grp 1 7100.0000 228000.0000

TOTAL 7100.0000 228000.0000

-------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9830, P = .000 (Approx.)
Bartlett-Box F = 28.597 , P = .000
Maximum Variance / Minimum Variance 57.711

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
27.05	11	SOURCE = .00
19.53	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
109.5	297.5	.0809	-1.7452	.0810

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem30.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem30.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 263
16:19:10  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean        9819.355          S.E. Mean     514.446
Std Dev     2864.311          Variance    8204279.570
Kurtosis     -.650            S.E. Kurt        .821
Skewness      .027            S.E. Skew        .421
Range     10500.000           Minimum    4500.0000000
Maximum  15000.0000000            Sum     304400.000

Valid observations -     31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 264
16:19:10  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 265
16:19:11 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	12518.182	S.E. Mean	895.120
Std Dev	2968.777	Variance	8813636.364
Kurtosis	.694	S.E. Kurt	1.279
Skewness	-.135	S.E. Skew	.661
Range	10900.000	Minimum	6800.0000000
Maximum	17700.0000000	Sum	137700.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 266
16:19:11 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 267
16:19:12 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	59136439.74	59136439.74	7.0766	.0112
WITHIN GROUPS	40	334264750.7	8356618.768		
TOTAL	41	393401190.5			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	12518.1818	2968.7769	895.1199	10523.7309 TO 14512.6328
Grp 1	31	9819.3548	2864.3114	514.4455	8768.7169 TO 10869.9928
TOTAL	42	10526.1905	3097.6041	477.9707	9560.9091 TO 11491.4719
FIXED EFFECTS MODEL			2890.7817	446.0573	9624.6750 TO 11427.7059
RANDOM EFFECTS MODEL			1455.0350		-7961.7753 TO 29014.1562

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 3127203.0512

GROUP	MINIMUM	MAXIMUM
Grp 0	6800.0000	17700.0000
Grp 1	4500.0000	15000.0000
TOTAL	4500.0000	17700.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 268
16:19:12 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5179, P = .874 (Approx.)
Bartlett-Box F = .019 , P = .891
Maximum Variance / Minimum Variance 1.074

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 269
16:19:12 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 270
16:19:14 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
29.32	11	SOURCE = .00
18.73	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
84.5	322.5	.0123	-2.4609	.0139

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 271
16:19:14 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem31.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem31.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 272
16:19:16  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean      3227096.774          S.E. Mean   135763.230
Std Dev    755897.672          Variance  571381290323
Kurtosis       .760          S.E. Kurt        .821
Skewness       .817          S.E. Skew        .421
Range     3310000.000          Minimum  2130000.00000
Maximum  5440000.00000            Sum   100040000.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 273
16:19:16  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 274
16:19:17 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	3561818.182	S.E. Mean	378595.054
Std Dev	1255657.741	Variance	1.57668E+12
Kurtosis	1.480	S.E. Kurt	1.279
Skewness	1.033	S.E. Skew	.661
Range	4520000.000	Minimum	1860000.00000
Maximum	6380000.00000	Sum	39180000.000

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 275
16:19:17 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->    ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 276
16:19:17 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	9.0965E+11	9.0965E+11	1.1057	.2993
WITHIN GROUPS	40	3.2908E+13	8.2271E+11		
TOTAL	41	3.3818E+13			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	3561818.182	1255657.741	378595.054	2718256.048 TO 4405380.316
Grp 1	31	3227096.774	755897.671	9135763.230	2949831.262 TO 3504362.286
TOTAL	42	3314761.905	908199.070	5140138.159	3031747.144 TO 3597776.666
FIXED EFFECTS MODEL		907030.902	8139957.907		3031896.416 TO 3597627.393
RANDOM EFFECTS MODEL			151235.909	1393128.181	TO 5236395.629

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP	MINIMUM	MAXIMUM
Grp 0	1860000.000	6380000.000
Grp 1	2130000.000	5440000.000
TOTAL	1860000.000	6380000.000

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7340, P = .028 (Approx.)
Bartlett-Box F = 4.283 , P = .039
Maximum Variance / Minimum Variance 2.759

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
23.91	11	SOURCE = .00
20.65	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
144.0	263.0	.4626	-.7582	.4484

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem32.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem32.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 281
16:19:22  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       295806.452          S.E. Mean    14286.878
Std Dev     79545.970          Variance  6327561290.3
Kurtosis       -.012          S.E. Kurt        .821
Skewness        .624          S.E. Skew        .421
Range      331000.000          Minimum   145000.000000
Maximum    476000.000000       Sum       9170000.000

Valid observations -      31    Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 282
16:19:22  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 283
16:19:23 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	353818.182	S.E. Mean	42993.830
Std Dev	142594.403	Variance	20333163636
Kurtosis	5.392	S.E. Kurt	1.279
Skewness	2.315	S.E. Skew	.661
Range	477000.000	Minimum	257000.000000
Maximum	734000.000000	Sum	3892000.000

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 284
16:19:23 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 285
16:19:23 DATA/BACKGROUND ANALYSIS

------- ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	27323524927	27323524927	2.7799	.1033
WITHIN GROUPS	40	3.9316E+11	9828961877		
TOTAL	41	4.2048E+11			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	353818.1818	142594.4025	42993.8300	258021.9831 TO 449614.3805
Grp 1	31	295806.4516	79545.9697	14286.8779	266628.7536 TO 324984.1496
TOTAL	42	311000.0000	101270.2253	15626.3350	279441.9754 TO 342558.0246
FIXED EFFECTS MODEL		99141.1210	15297.8071	280081.9777	TO 341918.0223
RANDOM EFFECTS MODEL			29914.2687	-69096.6850	TO 691096.6850

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP	MINIMUM	MAXIMUM
Grp 0	257000.0000	734000.0000
Grp 1	145000.0000	476000.0000
TOTAL	145000.0000	734000.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 286
16:19:24 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7627, P = .012 (Approx.)
Bartlett-Box F = 5.748 , P = .017
Maximum Variance / Minimum Variance 3.213

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 287
16:19:24 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; 1.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 288
16:19:24 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
26.00	11	SOURCE = .00
19.90	31	SOURCE = 1.00
	42	Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
121	286.0	.1633	-1.4162	.1567

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 289
16:19:24 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem33.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem33.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 290
16:19:28  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =      31.00

Variable  CONC

Mean          62.903          S.E. Mean      1.244
Std Dev        6.925          Variance      47.957
Kurtosis        .131          S.E. Kurt       .821
Skewness        .184          S.E. Skew       .421
Range         30.000          Minimum     50.0000000
Maximum    80.0000000          Sum         1950.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 291
16:19:28  DATA/BACKGROUND ANALYSIS


Proceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 292
16:19:28 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 9.00

Variable CONC

Mean	64.444	S.E. Mean	2.422
Std Dev	7.265	Variance	52.778
Kurtosis	1.467	S.E. Kurt	1.400
Skewness	1.501	S.E. Skew	.717
Range	20.000	Minimum	60.0000000
Maximum	80.0000000	Sum	580.000

Valid observations - 9 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 293
16:19:28 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 294
16:19:29 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	16.5681	16.5681	.3383	.5642
WITHIN GROUPS	38	1860.9319	48.9719		
TOTAL	39	1877.5000			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	9	64.4444	7.2648	2.4216	58.8602 TO 70.0287
Grp 1	31	62.9032	6.9251	1.2438	60.3631 TO 65.4434
TOTAL	40	63.2500	6.9384	1.0971	61.0310 TO 65.4690
FIXED EFFECTS MODEL		6.9980	1.1065	61.0100	TO 65.4900
RANDOM EFFECTS MODEL			1.1065	49.1908	TO 77.3092

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -2.3229

GROUP	MINIMUM	MAXIMUM
Grp 0	60.0000	80.0000
Grp 1	50.0000	80.0000
TOTAL	50.0000	80.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 295
16:19:29 DATA/BACKGROUND ANALYSIS

-------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5239, P = .837 (Approx.)
Bartlett-Box F = .028 , P = .867
Maximum Variance / Minimum Variance 1.101

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 296
16:19:29 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0.1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 297
16:19:31 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
21.61	9	SOURCE = .00
20.18	31	SOURCE = 1.00
	40	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
129.5	194.5	.7503	-.3661	.7143

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 298
16:19:31 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem34.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem34.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 299
16:19:33  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       29.00

Variable  CONC

Mean        2534.483          S.E. Mean      186.838
Std Dev     1006.151          Variance    1012339.901
Kurtosis     .880             S.E. Kurt       .845
Skewness    1.261             S.E. Skew       .434
Range       3600.000          Minimum    1500.0000000
Maximum    5100.0000000           Sum       73500.000

Valid observations -      29      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 300
16:19:33  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 301
16:19:34 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	1890.909	S.E. Mean	161.501
Std Dev	535.639	Variance	286909.091
Kurtosis	-.995	S.E. Kurt	1.279
Skewness	.868	S.E. Skew	.661
Range	1400.000	Minimum	1400.0000000
Maximum	2800.0000000	Sum	20800.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 302
16:19:34 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 303
16:19:35 DATA/BACKGROUND ANALYSIS

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	3303141.850	3303141.850	4.0212	.0521
WITHIN GROUPS	38	31214608.15	821437.0566		
TOTAL	39	34517750.00			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	1890.9091	535.6390	161.5012	1531.0620 TO 2250.7561
Grp 1	29	2534.4828	1006.1510	186.8376	2151.7634 TO 2917.2022
TOTAL	40	2357.5000	940.7819	148.7507	2056.6234 TO 2658.3766
FIXED EFFECTS MODEL		906.3316	143.3036	2067.3970	TO 2647.6030
RANDOM EFFECTS MODEL		337.7663	-1934.2264	TO 6649.2264	

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 155592.7770

GROUP	MINIMUM	MAXIMUM
Grp 0	1400.0000	2800.0000
Grp 1	1500.0000	5100.0000
TOTAL	1400.0000	5100.0000

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7792, P = .009 (Approx.)
Bartlett-Box F = 4.511 , P = .034
Maximum Variance / Minimum Variance 3.528

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
13.73	11	SOURCE = .00
23.07	29	SOURCE = 1.00
	40	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
85.0	151.0	.0234	-2.2684	.0233

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem35.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem35.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 308
16:19:39  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       21632.258          S.E. Mean     3500.625
Std Dev    19490.654          Variance  379885591.40
Kurtosis      10.252          S.E. Kurt         .821
Skewness       3.195          S.E. Skew         .421
Range      91000.000          Minimum   10000.0000000
Maximum   101000.000000           Sum      670600.000

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 309
16:19:39  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	14890.909	S.E. Mean	791.828
Std Dev	2626.197	Variance	6896909.091
Kurtosis	-.515	S.E. Kurt	1.279
Skewness	-.118	S.E. Skew	.661
Range	8400.000	Minimum	10700.0000000
Maximum	19100.0000000	Sum	163800.000

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	368976500.5	368976500.5	1.2873	.2633
WITHIN GROUPS	40	11465536833	286638420.8		
TOTAL	41	11834513333			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	14890.9091	2626.1967	791.8281	13126.6066 TO 16655.2116
Grp 1	31	21632.2581	19490.6539	3500.6248	14483.0283 TO 28781.4878
TOTAL	42	19866.6667	16989.6047	2621.5529	14572.3330 TO 25161.0003
FIXED EFFECTS MODEL		16930.3993	2612.4173	14586.7742	TO 25146.5592
RANDOM EFFECTS MODEL			3151.9783	-20183.0008	TO 59916.3341

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 5070673.5279

GROUP MINIMUM MAXIMUM

Grp 0 10700.0000 19100.0000
Grp 1 10000.0000 101000.0000

TOTAL 10000.0000 101000.0000

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9822, P = .000 (Approx.)
Bartlett-Box F = 28.146 , P = .000
Maximum Variance / Minimum Variance 55.081

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
18.18	11	SOURCE = .00
22.68	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
134.0	200.0	.3079	-1.0444	.2963

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem36.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem36.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 317
16:19:45  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       27.00

Variable  CONC

Mean        1668.704          S.E. Mean     221.099
Std Dev     1148.863          Variance   1319886.217
Kurtosis      -1.066          S.E. Kurt        .872
Skewness        .388          S.E. Skew        .448
Range       3565.000          Minimum    265.0000000
Maximum  3830.0000000          Sum          45055.000

Valid observations -      27     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 318
16:19:45  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 319
16:19:46 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 9.00

Variable CONC

Mean	2258.333	S.E. Mean	456.600
Std Dev	1369.799	Variance	1876350.000
Kurtosis	.220	S.E. Kurt	1.400
Skewness	1.056	S.E. Skew	.717
Range	4085.000	Minimum	705.0000000
Maximum	4790.0000000	Sum	20325.000

Valid observations - 9 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 320
16:19:46 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0.1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 321
16:19:48 DATA/BACKGROUND ANALYSIS

------- ---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	2346725.926	2346725.926	1.6175	.2121
WITHIN GROUPS	34	49327841.63	1450818.871		
TOTAL	35	51674567.56			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	9	2258.3333	1369.7993	456.5998	1205.4135 TO 3311.2532
Grp 1	27	1668.7037	1148.8630	221.0988	1214.2286 TO 2123.1788
TOTAL	36	1816.1111	1215.0787	202.5131	1404.9876 TO 2227.2346
FIXED EFFECTS MODEL		1204.4994	200.7499	1408.1382	TO 2224.0840
RANDOM EFFECTS MODEL			285.9680	-1817.4557	TO 5449.6779

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 66363.4855

GROUP	MINIMUM	MAXIMUM
Grp 0	705.0000	4790.0000
Grp 1	265.0000	3830.0000
TOTAL	265.0000	4790.0000

------- ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5870, P = .476 (Approx.)
Bartlett-Box F = .384 , P = .535
Maximum Variance / Minimum Variance 1.422

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
22.28	9	SOURCE = .00
17.24	27	SOURCE = 1.00
	36	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
87.5	200.5	.2184	-1.2424	.2141

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
   TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem37.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem37.dat

Variable  Rec  Start   End      Format

FIRST      1     1      3       A3
CONC       1     4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 326
16:19:52  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       18.00

Variable  CONC

Mean          169.667          S.E. Mean      15.508
Std Dev        65.795          Variance     4328.941
Kurtosis        6.014          S.E. Kurt       1.038
Skewness        1.924          S.E. Skew        .536
Range         311.000          Minimum     70.0000000
Maximum    381.0000000          Sum          3054.000

Valid observations -      18     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 327
16:19:52  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 328
16:19:53 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 9.00

Variable CONC

Mean	95.556	S.E. Mean	16.958
Std Dev	50.875	Variance	2588.278
Kurtosis	-1.654	S.E. Kurt	1.400
Skewness	.809	S.E. Skew	.717
Range	116.000	Minimum	54.0000000
Maximum	170.0000000	Sum	860.000

Valid observations - 9 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 329
16:19:53 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 330
16:19:53 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	32954.7407	32954.7407	8.7368	.0067
WITHIN GROUPS	25	94298.2222	3771.9289		
TOTAL	26	127252.9630			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	9	95.5556	50.8751	16.9584	56.4495 TO 134.6616
Grp 1	18	169.6667	65.7947	15.5080	136.9477 TO 202.3856
TOTAL	27	144.9630	69.9596	13.4637	117.2879 TO 172.6381
FIXED EFFECTS MODEL		61.4160	11.8195	120.6202	TO 169.3057
RANDOM EFFECTS MODEL			38.6103	-345.6276	TO 635.5535

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 2431.9010

GROUP	MINIMUM	MAXIMUM
Grp 0	54.0000	170.0000
Grp 1	70.0000	381.0000
TOTAL	54.0000	381.0000

---------- ONEWAY ----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6258, P = .366 (Approx.)
Bartlett-Box F = .640 , P = .424
Maximum Variance / Minimum Variance 1.673

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
8.17	9	SOURCE = .00
16.92	18	SOURCE = 1.00
	27	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
28.5	73.5	.0052	-2.7015	.0069

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem38.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem38.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 335
16:19:57  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean      3000645.161          S.E. Mean   113356.356
Std Dev    631141.482          Variance  398339569892
Kurtosis      1.212            S.E. Kurt       .821
Skewness       .671            S.E. Skew       .421
Range     2870000.000          Minimum  1730000.00000
Maximum  4600000.00000            Sum    93020000.000

Valid observations -     31     Missing observations -     0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 336
16:19:57  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 337
16:19:58 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	3480909.091	S.E. Mean	256037.833
Std Dev	849181.424	Variance	721109090909
Kurtosis	1.468	S.E. Kurt	1.279
Skewness	1.009	S.E. Skew	.661
Range	3140000.000	Minimum	2170000.00000
Maximum	5310000.00000	Sum	38290000.000

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 338
16:19:58 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time: .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 339
16:20:00 DATA/BACKGROUND ANALYSIS

------- ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1.8727E+12	1.8727E+12	3.9093	.0549
WITHIN GROUPS	40	1.9161E+13	4.7903E+11		
TOTAL	41	2.1034E+13			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	3480909.091	849181.424	0256037.833	2910421.393 TO 4051396.789
Grp 1	31	3000645.161	631141.481	7113356.356	2769140.591 TO 3232149.732
TOTAL	42	3126428.571	716256.601	5110520.793	2903227.296 TO 3349629.847
FIXED EFFECTS MODEL		692121.340	6106796.641		2910584.502 TO 3342272.641
RANDOM EFFECTS MODEL			253080.020	-89256.8141	TO 6342113.957

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

```
GROUP      MINIMUM     MAXIMUM

 Grp 0   2170000.000 5310000.000
 Grp 1   1730000.000 4600000.000

TOTAL    1730000.000 5310000.000
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 340
16:20:00  DATA/BACKGROUND ANALYSIS


------- ----------O N E W A Y----------------


Tests for Homogeneity of Variances

    Cochrans C = Max. Variance/Sum(Variances) =  .6442, P =  .193 (Approx.)
    Bartlett-Box F =                    1.394 , P =  .238
    Maximum Variance / Minimum Variance        1.810
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 341
16:20:00  DATA/BACKGROUND ANALYSIS


Preceding task required .07 seconds CPU time;  .00 seconds elapsed.

->      NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 342
16:20:02  DATA/BACKGROUND ANALYSIS


----- Mann-Whitney U - Wilcoxon Rank Sum W Test

   CONC
 by SOURCE


   Mean Rank    Cases

     28.23       11  SOURCE =  .00
     19.11       31  SOURCE = 1.00
                 -
                 42  Total

                          Exact          Corrected for ties
        U          W     2-Tailed P        Z      2-Tailed P
      96.5       310.5     .0328       -2.1171      .0342

16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 343
16:20:02  DATA/BACKGROUND ANALYSIS


Preceding task required .04 seconds CPU time;  .00 seconds elapsed.

->
```

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem39.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem39.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 344
16:20:04  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       30.00

Variable  CONC

Mean        306.000          S.E. Mean      23.750
Std Dev     130.082          Variance     16921.379
Kurtosis      4.148          S.E. Kurt        .833
Skewness      1.902          S.E. Skew        .427
Range       550.000          Minimum    200.0000000
Maximum  750.0000000          Sum          9180.000

Valid observations -      30      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 345
16:20:04  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 346
16:20:05 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	459.091	S.E. Mean	52.837
Std Dev	175.240	Variance	30709.091
Kurtosis	-1.490	S.E. Kurt	1.279
Skewness	-.258	S.E. Skew	.661
Range	460.000	Minimum	210.0000000
Maximum	670.0000000	Sum	5050.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 347
16:20:05 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 348
16:20:07 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	188637.8714	188637.8714	9.2213	.0042
WITHIN GROUPS	39	797810.9091	20456.6900		
TOTAL	40	986448.7805			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	459.0909	175.2401	52.8369	341.3630 TO 576.8188
Grp 1	30	306.0000	130.0822	23.7497	257.4265 TO 354.5735
TOTAL	41	347.0732	157.0389	24.5254	297.5056 TO 396.6408
FIXED EFFECTS MODEL		143.0269	22.3370		301.8922 TO 392.2541
RANDOM EFFECTS MODEL			82.7320		-704.1361 TO 1398.2824

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 10447.6188

GROUP	MINIMUM	MAXIMUM
Grp 0	210.0000	670.0000
Grp 1	200.0000	750.0000
TOTAL	200.0000	750.0000

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6447, P = .191 (Approx.)
Bartlett-Box F = 1.390 , P = .239
Maximum Variance / Minimum Variance 1.815

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
28.55	11	SOURCE = .00
18.23	30	SOURCE = 1.00
	41	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
82.0	314.0	.0136	-2.4566	.0140

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem40.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem40.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 353
16:20:11  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       463554.839          S.E. Mean    72107.680
Std Dev    401478.572          Variance  161185043892
Kurtosis      1.224          S.E. Kurt        .821
Skewness      1.275          S.E. Skew        .421
Range   1479000.000          Minimum  $1000.0000000
Maximum 1560000.00000          Sum     14370200.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 354
16:20:11  DATA/BACKGROUND ANALYSIS


Preceding task required .13 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 355
16:20:12 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	145627.273	S.E. Mean	21818.825
Std Dev	72364.855	Variance	5236672181.8
Kurtosis	4.556	S.E. Kurt	1.279
Skewness	1.736	S.E. Skew	.661
Range	277200.000	Minimum	54800.0000000
Maximum	332000.000000	Sum	1601900.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 356
16:20:12 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 357
16:20:13 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	8.2066E+11	8.2066E+11	6.7158	.0133
WITHIN GROUPS	40	4.8879E+12	1.2220E+11		
TOTAL	41	5.7086E+12			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	145627.2727	72364.8546	21818.8246	97011.9143 TO 194242.6312
Grp 1	31	463554.8387	401478.5721	72107.6802	316291.3057 TO 610818.3718
TOTAL	42	380288.0952	373140.0909	57576.7660	264009.4542 TO 496566.7363
FIXED EFFECTS MODEL		349568.2351	53939.5497	271272.1958	TO 489303.9946
RANDOM EFFECTS MODEL				171152.240	-1794406.52 TO 2554982.709

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE **********

GROUP MINIMUM MAXIMUM

Grp 0 54800.0000 332000.0000
Grp 1 81000.0000 1560000.000

TOTAL 54800.0000 1560000.000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9685, P = .000 (Approx.)
Bartlett-Box F = 22.595 , P = .000
Maximum Variance / Minimum Variance 30.780

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
14.45	11 SOURCE = .00
24.00	31 SOURCE = 1.00
	42 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
93.0	159.0	.0261	-2.2171	.0266

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem41.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem41.dat

Variable  Rec  Start   End      Format

FIRST      1     1      3       A3
CONC       1     4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 362
16:20:16  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       157729.032          S.E. Mean    14050.788
Std Dev     78231.478          Variance  6120164129.0
Kurtosis        1.303          S.E. Kurt        .821
Skewness        1.381          S.E. Skew        .421
Range      291800.000          Minimum   70200.0000000
Maximum    362000.000000       Sum         4889600.000

Valid observations -      31    Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 363
16:20:16  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	120627.273	S.E. Mean	17972.333
Std Dev	59607.484	Variance	3553052181.8
Kurtosis	.595	S.E. Kurt	1.279
Skewness	1.193	S.E. Skew	.661
Range	192100.000	Minimum	56900.0000000
Maximum	249000.000000	Sum	1326900.000

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	11176198358	11176198358	2.0401	.1610
WITHIN GROUPS	40	2.1914E+11	5478386142		
TOTAL	41	2.3031E+11			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	120627.2727	59607.4843	17972.3327	80582.4301 TO 160672.1154
Grp 1	31	157729.0323	78231.4779	14050.7882	129033.4938 TO 186424.5708
TOTAL	42	148011.9048	74949.0305	11564.8865	124656.1421 TO 171367.6675
FIXED EFFECTS MODEL		74016.1208	11420.9354	124929.3327	TO 171094.4768
RANDOM EFFECTS MODEL			18592.1282	-88223.3974	TO 384247.2070

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 350891661.4107

GROUP MINIMUM MAXIMUM

Grp 0 56900.0000 249000.0000
Grp 1 70200.0000 362000.0000

TOTAL 56900.0000 362000.0000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6327, P = .233 (Approx.)
Bartlett-Box F = .972 , P = .524
Maximum Variance / Minimum Variance 1.723

Preceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
17.05	11	SOURCE = .00
23.08	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
121.5	187.5	.1633	-1.4019	.1610

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem42.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem42.dat

Variable  Rec  Start   End      Format

FIRST      1    1      3       A3
CONC       1    4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 371
16:20:21  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       54329.032          S.E. Mean     3763.335
Std Dev    20953.364          Variance  439043462.37
Kurtosis      -.283           S.E. Kurt        .821
Skewness       .782           S.E. Skew        .421
Range      80700.000          Minimum  23300.0000000
Maximum   104000.000000           Sum     1684200.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 372
16:20:21  DATA/BACKGROUND ANALYSIS


Preceding task required .11 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	43354.545	S.E. Mean	7303.827
Std Dev	24224.053	Variance	586804727.27
Kurtosis	5.908	S.E. Kurt	1.279
Skewness	2.306	S.E. Skew	.661
Range	84100.000	Minimum	24900.0000000
Maximum	109000.000000	Sum	476900.000

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	977852903.9	977852903.9	2.0544	.1595
WITHIN GROUPS	40	19039351144	475983778.6		
TOTAL	41	20017204048			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	43354.5455	24224.0527	7303.8267	27080.6096 TO 59628.4813
Grp 1	31	54329.0323	20953.3640	3763.3353	46643.2761 TO 62014.7884
TOTAL	42	51454.7619	22095.8025	3409.4563	44569.2249 TO 58340.2989
FIXED EFFECTS MODEL		21817.0525	3366.4443	44650.9240	TO 58258.5998
RANDOM EFFECTS MODEL			5503.6877	-18476.1958	TO 121385.7196

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 30906896.2814

GROUP	MINIMUM	MAXIMUM
Grp 0	24900.0000	109000.0000
Grp 1	23300.0000	104000.0000
TOTAL	23300.0000	109000.0000

----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5720, P = .522 (Approx.)
Bartlett-Box F = .319 , P = .572
Maximum Variance / Minimum Variance 1.337

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
15.05	11	SOURCE = .00
23.79	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
99.5	165.5	.0410	-2.0312	.0422

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem43.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem43.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 380
16:20:29  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          277.419          S.E. Mean      14.767
Std Dev        82.218          Variance     6759.785
Kurtosis        2.125          S.E. Kurt        .821
Skewness        1.641          S.E. Skew        .421
Range         310.000          Minimum    200.0000000
Maximum   510.0000000          Sum           8600.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 381
16:20:29  DATA/BACKGROUND ANALYSIS


Preceding task required .14 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	281.818	S.E. Mean	19.946
Std Dev	66.154	Variance	4376.364
Kurtosis	-.412	S.E. Kurt	1.279
Skewness	.397	S.E. Skew	.661
Range	200.000	Minimum	210.0000000
Maximum	410.0000000	Sum	3100.000

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	157.1010	157.1010	.0255	.8740
WITHIN GROUPS	40	246557.1848	6163.9296		
TOTAL	41	246714.2857			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	281.8182	66.1541	19.9462	237.3753 TO 326.2611
Grp 1	31	277.4194	82.2179	14.7668	247.2616 TO 307.5771
TOTAL	42	278.5714	77.5720	11.9696	254.3983 TO 302.7446
FIXED EFFECTS MODEL		78.5107	12.1145	254.0872 TO 303.0557	
RANDOM EFFECTS MODEL			12.1145	124.6426 TO 432.5002	

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -369.9220

GROUP	MINIMUM	MAXIMUM
Grp 0	210.0000	410.0000
Grp 1	200.0000	510.0000
TOTAL	200.0000	510.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 385
16:20:31 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6070, P = .339 (Approx.)
Bartlett-Box F = .634 , P = .426
Maximum Variance / Minimum Variance 1.545

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 386
16:20:31 DATA/BACKGROUND ANALYSIS

Proceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 387
16:20:32 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
23.64	11 SOURCE = .00
20.74	31 SOURCE = 1.00
	42 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
147.0	260.0	.5161	-.6764	.4988

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 388
16:20:32 DATA/BACKGROUND ANALYSIS

Proceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem44.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem44.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 389
16:20:35  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       43712.903          S.E. Mean     2462.719
Std Dev    13711.838          Variance   188014494.62
Kurtosis       2.139          S.E. Kurt         .821
Skewness       1.353          S.E. Skew         .421
Range      58600.000          Minimum   27300.0000000
Maximum  85900.0000000          Sum       1355100.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 390
16:20:35  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 391
16:20:36 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	42636.364	S.E. Mean	2782.617
Std Dev	9228.897	Variance	85172545.455
Kurtosis	-.031	S.E. Kurt	1.279
Skewness	-.037	S.E. Skew	.661
Range	31300.000	Minimum	27200.0000000
Maximum	58500.0000000	Sum	469000.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 392
16:20:36 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; 1.00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 393
16:20:36 DATA/BACKGROUND ANALYSIS

------- ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	9409468.650	9409468.650	.0580	.8110
WITHIN GROUPS	40	6492160293	162304007.3		
TOTAL	41	6501569762			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	42636.3636	9228.8973	2782.6172	36436.3076 TO 48836.4196
Grp 1	31	43712.9032	13711.8378	2462.7188	38683.3604 TO 48742.4461
TOTAL	42	43430.9524	12592.6515	1943.0883	39506.8058 TO 47355.0989
FIXED EFFECTS MODEL		12739.8590	1965.8029	39457.9164	TO 47403.9884
RANDOM EFFECTS MODEL			1965.8029	18453.0670	TO 68408.8578

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -9415792.7047

GROUP	MINIMUM	MAXIMUM
Grp 0	27200.0000	58500.0000
Grp 1	27300.0000	85900.0000
TOTAL	27200.0000	85900.0000

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 394
16:20:36 DATA/BACKGROUND ANALYSIS

-------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6882, P = .084 (Approx.)
Bartlett-Box F = 1.966 , P = .161
Maximum Variance / Minimum Variance 2.207

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 395
16:20:36 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 396
16:20:38 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
22.64	11	SOURCE = .00
21.10	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
158.0	249.0	.7351	-.3576	.7206

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 397
16:20:38 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem45.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem45.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 398
16:20:40  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean       40348.387          S.E. Mean     1806.439
Std Dev    10057.828          Variance  101159913.98
Kurtosis       .919           S.E. Kurt        .821
Skewness       .963           S.E. Skew        .421
Range      43000.000          Minimum   26600.0000000
Maximum    69600.0000000          Sum      1250800.000

Valid observations -      31     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 399
16:20:40  DATA/BACKGROUND ANALYSIS


Preceding task required .14 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 400
16:20:41 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	32981.818	S.E. Mean	2298.372
Std Dev	7622.837	Variance	58107636.364
Kurtosis	-.425	S.E. Kurt	1.279
Skewness	.511	S.E. Skew	.661
Range	25100.000	Minimum	21100.0000000
Maximum	46200.0000000	Sum	362800.000

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 401
16:20:41 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 402
16:20:43 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	440590978.9	440590978.9	4.8740	.0331
WITHIN GROUPS	40	3615873783	90396844.57		
TOTAL	41	4056464762			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	32981.8182	7622.8365	2298.3717	27860.7282 TO 38102.9081
Grp 1	31	40348.3871	10057.8285	1806.4393	36659.1457 TO 44037.6285
TOTAL	42	38419.0476	9946.7666	1534.8194	35319.4169 TO 41518.6784
FIXED EFFECTS MODEL		9507.7255	1467.0739	35453.9806	TO 41384.1146
RANDOM EFFECTS MODEL			3921.8054	-11412.1973	TO 88250.2925

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 21566207.6866

GROUP	MINIMUM	MAXIMUM
Grp 0	21100.0000	46200.0000
Grp 1	26600.0000	69600.0000
TOTAL	21100.0000	69600.0000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6352, P = .224 (Approx.)
Bartlett-Box F = 1.008 , P = .316
Maximum Variance / Minimum Variance 1.741

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
14.55	11	SOURCE = .00
23.97	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
94.0	160.0	.0282	-2.1886	.0286

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem46.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem46.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 407
16:20:48  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean        77406.452          S.E. Mean     5528.028
Std Dev     30778.758          Variance  947331956.99
Kurtosis        5.236          S.E. Kurt        .821
Skewness        2.298          S.E. Skew        .421
Range      129100.000          Minimum   52900.0000000
Maximum    182000.000000           Sum     2399600.000

Valid observations -      31     Missing observations -       0
16 Aug 92 881 HILLSIDE DA   EVALUATION                          Page 408
16:20:48  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	61954.545	S.E. Mean	3644.906
Std Dev	12088.785	Variance	146138727.27
Kurtosis	2.290	S.E. Kurt	1.279
Skewness	1.549	S.E. Skew	.661
Range	41500.000	Minimum	48700.0000000
Maximum	90200.0000000	Sum	681500.000

Valid observations - 11 Missing observations - 0

Proceding task required .05 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	1938515208	1938515208	2.5950	.1151
WITHIN GROUPS	40	29881345982	747033649.6		
TOTAL	41	31819861190			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	61954.5455	12088.7852	3644.9059	53833.1911 TO 70075.8998
Grp 1	31	77406.4516	30778.7582	5528.0282	66116.7117 TO 88696.1916
TOTAL	42	73359.5238	27858.4669	4298.6548	64678.2142 TO 82040.8334
FIXED EFFECTS MODEL		27331.9163	4217.4062	64835.8276	TO 81883.2200
RANDOM EFFECTS MODEL			7924.2415	-27327.4753	TO 174046.5230

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 73375697.1517

GROUP MINIMUM MAXIMUM

Grp 0 48700.0000 90200.0000
Grp 1 52900.0000 182000.0000

TOTAL 48700.0000 182000.0000

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .8664, P = .000 (Approx.)
Bartlett-Box F = 8.900 , P = .003
Maximum Variance / Minimum Variance 6.482

Preceding task required .07 seconds CPU time; 1.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
14.95	11	SOURCE = .00
23.82	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
98.5	164.5	.0381	-2.0598	.0394

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->     SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->     INPUT PROGRAM.
->     DATA LIST FILE = chem47.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem47.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->     IF (FIRST EQ 'N') SOURCE=1.
->     IF (FIRST NE 'N') SOURCE=0.
->     SET BLANKS=0.
->     END INPUT PROGRAM.
->     TEMPORARY.
->     SELECT IF (FIRST EQ 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 416
16:20:53  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          .333          S.E. Mean      .084
Std Dev       .469          Variance      .220
Kurtosis     5.519          S.E. Kurt      .821
Skewness     2.386          S.E. Skew      .421
Range        1.931          Minimum     .0129300
Maximum    1.9440000          Sum         10.315

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 417
16:20:53  DATA/BACKGROUND ANALYSIS


Preceding task required .13 seconds CPU time;  .00 seconds elapsed.

->     TEMPORARY.
->     SELECT IF (FIRST NE 'N').
->     SET WIDTH=80.
->     DESCRIPTIVES VARIABLES=CONC
->  /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	.019	S.E. Mean	.003
Std Dev	.010	Variance	.000
Kurtosis	.742	S.E. Kurt	1.279
Skewness	.948	S.E. Skew	.661
Range	.034	Minimum	.0063850
Maximum	.0404600	Sum	.204

Valid observations - 11 Missing observations - 0

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.8015	.8015	4.8546	.0334
WITHIN GROUPS	40	6.6041	.1651		
TOTAL	41	7.4056			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	.0185	.0102	.0031	.0117 TO .0254
Grp 1	31	.3327	.4692	.0843	.1607 TO .5048
TOTAL	42	.2505	.4250	.0656	.1180 TO .3829
FIXED EFFECTS MODEL		.4063	.0627	.1237	TO .3772
RANDOM EFFECTS MODEL			.1672	-1.8746	TO 2.3755

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE .0392

GROUP	MINIMUM	MAXIMUM
Grp 0	.0064	.0405
Grp 1	.0129	1.9440
TOTAL	.0064	1.9440

------- ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .9995, P = .000 (Approx.)
Bartlett-Box F = 64.581 , P = .000
Maximum Variance / Minimum Variance 2124.587

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
7.82	11	SOURCE = .00
26.35	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
20.0	86.0	.0000	-4.3054	.0000

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem48.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem48.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4     28      F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 425
16:21:00  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          2.308          S.E. Mean      .613
Std Dev       3.414          Variance     11.658
Kurtosis      3.524          S.E. Kurt      .821
Skewness      2.079          S.E. Skew      .421
Range        12.922          Minimum    .0676900
Maximum   12.9900000          Sum          71.534

Valid observations -     31       Missing observations -     0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 426
16:21:00  DATA/BACKGROUND ANALYSIS


Proceding task required .12 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 427
16:21:01 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	.046	S.E. Mean	.003
Std Dev	.009	Variance	.000
Kurtosis	-.367	S.E. Kurt	1.279
Skewness	-.147	S.E. Skew	.661
Range	.029	Minimum	.0317600
Maximum	.0609300	Sum	.509

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 428
16:21:01 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 429
16:21:01 DATA/BACKGROUND ANALYSIS

---------- O N E W A Y ----------

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	41.5159	41.5159	4.7480	.0353
WITHIN GROUPS	40	349.7527	8.7438		
TOTAL	41	391.2686			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	.0463	.0091	.0027	.0402 TO .0524
Grp 1	31	2.3076	3.4144	.6133	1.0551 TO 3.5600
TOTAL	42	1.7153	3.0892	.4767	.7527 TO 2.6780
FIXED EFFECTS MODEL		2.9570	.4563	.7932 TO 2.6375	
RANDOM EFFECTS MODEL			1.2025	-13.5645 TO 16.9951	

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE 2.0182

GROUP	MINIMUM	MAXIMUM
Grp 0	.0318	.0609
Grp 1	.0677	12.9900
TOTAL	.0318	12.9900

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = 1.0000, P = .000 (Approx.)
Bartlett-Box F = 108.091 , P = .000
Maximum Variance / Minimum Variance 140345.608

Preceding task required .08 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
6.00	11	SOURCE = .00
27.00	31	SOURCE = 1.00
	42	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
.0	66.0	.0000	-4.8776	.0000

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE "881 HILLSIDE DATA EVALUATION".
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem49.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem49.dat

Variable  Rec  Start   End       Format

FIRST      1     1     3        A3
CONC       1     4    28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 434
16:21:06  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       30.00

Variable  CONC

Mean            .950          S.E. Mean       .026
Std Dev         .145          Variance        .021
Kurtosis       -.271          S.E. Kurt       .833
Skewness       -.070          S.E. Skew       .427
Range           .612          Minimum      .6471000
Maximum    1.2590000          Sum            28.495

Valid observations -      30     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 435
16:21:06  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 436
16:21:08 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	1.065	S.E. Mean	.042
Std Dev	.139	Variance	.019
Kurtosis	-.603	S.E. Kurt	1.279
Skewness	-.429	S.E. Skew	.661
Range	.462	Minimum	.8130000
Maximum	1.2750000	Sum	11.710

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 437
16:21:08 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 438
16:21:08 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.1059	.1059	5.1590	.0287
WITHIN GROUPS	39	.8008	.0205		
TOTAL	40	.9067			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	1.0645	.1385	.0418	.9715 TO 1.1576
Grp 1	30	.9498	.1449	.0265	.8957 TO 1.0039
TOTAL	41	.9806	.1506	.0235	.9331 TO 1.0281
FIXED EFFECTS MODEL		.1433	.0224	.9353 TO 1.0259	
RANDOM EFFECTS MODEL			.0610	.2053 TO 1.7559	

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE .0053

GROUP	MINIMUM	MAXIMUM
Grp 0	.8130	1.2750
Grp 1	.6471	1.2590
TOTAL	.6471	1.2750

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 439
16:21:09 DATA/BACKGROUND ANALYSIS

------ ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5224, P = .843 (Approx.)
Bartlett-Box F = .029 , P = .866
Maximum Variance / Minimum Variance 1.094

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 440
16:21:09 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; 1.00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 441
16:21:09 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
27.64	11	SOURCE = .00
18.57	30	SOURCE = 1.00
	41	Total

	Exact		Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
92.0	304.0	.0314	-2.1480	.0317

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 442
16:21:09 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem50.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem50.dat

Variable  Rec  Start   End       Format

FIRST      1     1      3        A3
CONC       1     4     28        F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 443
16:21:13  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       30.00

Variable  CONC

Mean          1.913          S.E. Mean       .063
Std Dev        .346          Variance        .120
Kurtosis      2.945          S.E. Kurt       .833
Skewness      1.192          S.E. Skew       .427
Range         1.726          Minimum    1.3280000
Maximum    3.0540000             Sum        57.386

Valid observations -     30     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 444
16:21:13  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 445
16:21:15 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	2.209	S.E. Mean	.114
Std Dev	.380	Variance	.144
Kurtosis	-.357	S.E. Kurt	1.279
Skewness	-.865	S.E. Skew	.661
Range	1.148	Minimum	1.5070000
Maximum	2.6550000	Sum	24.303

Valid observations - 11 Missing observations - 0

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 446
16:21:15 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 447
16:21:15 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.7076	.7076	5.6223	.0228
WITHIN GROUPS	39	4.9082	.1259		
TOTAL	40	5.6157			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	2.2094	.3795	.1144	1.9544 TO 2.4643
Grp 1	30	1.9129	.3458	.0631	1.7837 TO 2.0420
TOTAL	41	1.9924	.3747	.0585	1.8741 TO 2.1107
FIXED EFFECTS MODEL			.3548	.0554	1.8804 TO 2.1045
RANDOM EFFECTS MODEL			.1582	-.0174	TO 4.0022

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE .0361

GROUP	MINIMUM	MAXIMUM
Grp 0	1.5070	2.6550
Grp 1	1.3280	3.0540
TOTAL	1.3280	3.0540

------- ----------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .5464, P = .681 (Approx.)
Bartlett-Box F = .128 , P = .721
Maximum Variance / Minimum Variance 1.205

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
28.27	11	SOURCE = .00
18.33	30	SOURCE = 1.00
	41	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
85.0	311.0	.0177	-2.3540	.0186

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem51.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem51.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 452
16:21:20  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          1.166          S.E. Mean      .043
Std Dev        .241          Variance       .058
Kurtosis      -.120          S.E. Kurt      .821
Skewness      -.010          S.E. Skew      .421
Range          .984          Minimum     .6781000
Maximum    1.6620000             Sum       36.134

Valid observations -      31      Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 453
16:21:20  DATA/BACKGROUND ANALYSIS


Preceding task required .12 seconds CPU time;  .00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 454
16:21:21 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	1.222	S.E. Mean	.051
Std Dev	.169	Variance	.029
Kurtosis	-.230	S.E. Kurt	1.279
Skewness	-.425	S.E. Skew	.661
Range	.550	Minimum	.9219000
Maximum	1.4720000	Sum	13.437

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 455
16:21:21 DATA/BACKGROUND ANALYSIS

Proceding task required .05 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 456
16:21:22 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.0254	.0254	.4994	.4839
WITHIN GROUPS	40	2.0363	.0509		
TOTAL	41	2.0617			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	1.2216	.1694	.0511	1.1078 TO 1.3353
Grp 1	31	1.1656	.2415	.0434	1.0770 TO 1.2542
TOTAL	42	1.1803	.2242	.0346	1.1104 TO 1.2501
FIXED EFFECTS MODEL			.2256	.0348	1.1099 TO 1.2506
RANDOM EFFECTS MODEL				.0348	.7379 TO 1.6226

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -.0016

GROUP	MINIMUM	MAXIMUM
Grp 0	.9219	1.4720
Grp 1	.6781	1.6620
TOTAL	.6781	1.6620

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 457
16:21:22 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6703, P = .121 (Approx.)
Bartlett-Box F = 1.603 , P = .206
Maximum Variance / Minimum Variance 2.033

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 458
16:21:22 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 459
16:21:24 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
24.36	11 SOURCE = .00
20.48	31 SOURCE = 1.00
	42 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
139.0	268.0	.3806	-.9012	.3675

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 460
16:21:24 DATA/BACKGROUND ANALYSIS

Preceding task required .05 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem52.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem52.dat

Variable  Rec  Start   End      Format

FIRST      1     1     3       A3
CONC       1     4    28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 461
16:21:27  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       15.00

Variable  CONC

Mean            .080          S.E. Mean       .006
Std Dev         .022          Variance        .000
Kurtosis       -.420          S.E. Kurt      1.121
Skewness        .563          S.E. Skew       .580
Range           .069          Minimum     .0525600
Maximum     .1220000          Sum            1.196

Valid observations -      15     Missing observations -      0
16 Aug 92 881 HILLSIDE DATA EVALUATION                    Page 462
16:21:27  DATA/BACKGROUND ANALYSIS


Preceding task required .09 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	.056	S.E. Mean	.011
Std Dev	.038	Variance	.001
Kurtosis	1.152	S.E. Kurt	1.279
Skewness	.912	S.E. Skew	.661
Range	.129	Minimum	.0106200
Maximum	.1393000	Sum	.620

Valid observations - 11 Missing observations - 0

Proceding task required .04 seconds CPU time; .00 seconds elapsed.

```
->     ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL
```

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.0035	.0035	3.9480	.0585
WITHIN GROUPS	24	.0211	.0009		
TOTAL	25	.0245			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	.0564	.0377	.0114	.0310 TO .0817
Grp 1	15	.0797	.0221	.0057	.0675 TO .0920
TOTAL	26	.0698	.0313	.0061	.0572 TO .0825
FIXED EFFECTS MODEL		.0296	.0058	.0578 TO .0818	
RANDOM EFFECTS MODEL			.0117	-.0795 TO .2191	

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE .0002

GROUP	MINIMUM	MAXIMUM
Grp 0	.0106	.1393
Grp 1	.0526	.1220
TOTAL	.0106	.1393

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 466
16:21:28 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .7445, P = .076 (Approx.)
Bartlett-Box F = 3.242 , P = .072
Maximum Variance / Minimum Variance 2.914

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 467
16:21:28 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 468
16:21:30 DATA/BACKGROUND ANALYSIS

- - - - - Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases	
9.64	11	SOURCE = .00
16.33	15	SOURCE = 1.00
	26	Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
40.0	106.0	.0274	-2.2061	.0274

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 469
16:21:30 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

->

```
    TITLE '881 HILLSIDE DATA EVALUATION'.
->    SUBTITLE 'DATA/BACKGROUND ANALYSIS'.
->    INPUT PROGRAM.
->    DATA LIST FILE = chem53.dat / FIRST 1-3 (A) CONC 4-28 (10).

This command will read 1 records from chem53.dat

Variable  Rec  Start   End      Format

FIRST      1     1      3       A3
CONC       1     4     28       F25.10

->    IF (FIRST EQ 'N') SOURCE=1.
->    IF (FIRST NE 'N') SOURCE=0.
->    SET BLANKS=0.
->    END INPUT PROGRAM.
->    TEMPORARY.
->    SELECT IF (FIRST EQ 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 197,992 bytes of memory available.
The largest contiguous area has 197,792 bytes.


76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 470
16:21:34  DATA/BACKGROUND ANALYSIS


Number of valid observations (listwise) =       31.00

Variable  CONC

Mean          1.267          S.E. Mean       .060
Std Dev        .337          Variance        .113
Kurtosis       .623          S.E. Kurt       .821
Skewness       .443          S.E. Skew       .421
Range         1.573          Minimum       .6257000
Maximum     2.1990000          Sum          39.269

Valid observations -      31     Missing observations -       0
16 Aug 92 881 HILLSIDE DATA EVALUATION                          Page 471
16:21:34  DATA/BACKGROUND ANALYSIS


Preceding task required .10 seconds CPU time;  1.00 seconds elapsed.

->    TEMPORARY.
->    SELECT IF (FIRST NE 'N').
->    SET WIDTH=80.
->    DESCRIPTIVES VARIABLES=CONC
-> /STATISTICS=ALL.

>Warning # 11003
>The new default column-style printing cannot be used for this DESCRIPTIVES, as
>there are too many statistics to print on one line per variable.  Old style
>printing will be used instead.


There are 199,528 bytes of memory available.
The largest contiguous area has 198,816 bytes.
```

76 bytes of memory required for the DESCRIPTIVES procedure.
4 bytes have already been acquired.
72 bytes remain to be acquired.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 472
16:21:34 DATA/BACKGROUND ANALYSIS

Number of valid observations (listwise) = 11.00

Variable CONC

Mean	1.233	S.E. Mean	.068
Std Dev	.225	Variance	.051
Kurtosis	-.794	S.E. Kurt	1.279
Skewness	-.686	S.E. Skew	.661
Range	.677	Minimum	.8439000
Maximum	1.5210000	Sum	13.560

Valid observations - 11 Missing observations - 0
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 473
16:21:34 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

-> ONEWAY CONC BY SOURCE(0,1)
-> /STATISTICS=ALL.

ONEWAY problem requires 228 bytes of memory.

There are 199,616 bytes of memory available.
The largest contiguous area has 198,456 bytes.
16 Aug 92 881 HILLSIDE DATA EVALUATION Page 474
16:21:36 DATA/BACKGROUND ANALYSIS

- - - - - - - - - - - - - - - - O N E W A Y - - - - - - - - - - - - - - - -

Variable CONC
By Variable SOURCE

ANALYSIS OF VARIANCE

SOURCE	D.F.	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
BETWEEN GROUPS	1	.0094	.0094	.0962	.7580
WITHIN GROUPS	40	3.9089	.0977		
TOTAL	41	3.9183			

GROUP	COUNT	MEAN	STANDARD DEVIATION	STANDARD ERROR	95 PCT CONF INT FOR MEAN
Grp 0	11	1.2327	.2251	.0679	1.0815 TO 1.3839
Grp 1	31	1.2667	.3368	.0605	1.1432 TO 1.3903
TOTAL	42	1.2578	.3091	.0477	1.1615 TO 1.3542
FIXED EFFECTS MODEL			.3126	.0482	1.1603 TO 1.3553
RANDOM EFFECTS MODEL				.0482	.6449 TO 1.8707

WARNING - BETWEEN COMPONENT VARIANCE IS NEGATIVE
IT WAS REPLACED BY 0.0 IN COMPUTING ABOVE RANDOM EFFECTS MEASURES

RANDOM EFFECTS MODEL - ESTIMATE OF BETWEEN COMPONENT VARIANCE -.0054

GROUP	MINIMUM	MAXIMUM
Grp 0	.8439	1.5210
Grp 1	.6257	2.1990
TOTAL	.6257	2.1990

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 475
16:21:36 DATA/BACKGROUND ANALYSIS

-------ONEWAY----------

Tests for Homogeneity of Variances

Cochrans C = Max. Variance/Sum(Variances) = .6912, P = .079 (Approx.)
Bartlett-Box F = 2.030 , P = .154
Maximum Variance / Minimum Variance 2.258

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 476
16:21:36 DATA/BACKGROUND ANALYSIS

Preceding task required .07 seconds CPU time; .00 seconds elapsed.

-> NPAR TESTS M-W=CONC BY SOURCE(0,1).

There are 199,616 bytes of memory available.
The largest contiguous area has 199,616 bytes.

***** Workspace allows for 7127 cases for NPAR tests *****

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 477
16:21:38 DATA/BACKGROUND ANALYSIS

----- Mann-Whitney U - Wilcoxon Rank Sum W Test

CONC
by SOURCE

Mean Rank	Cases
20.73	11 SOURCE = .00
21.77	31 SOURCE = 1.00
	42 Total

		Exact	Corrected for ties	
U	W	2-Tailed P	Z	2-Tailed P
162.0	228.0	.8216	-.2432	.8079

16 Aug 92 881 HILLSIDE DATA EVALUATION Page 478
16:21:38 DATA/BACKGROUND ANALYSIS

Preceding task required .04 seconds CPU time; .00 seconds elapsed.

ATTACHMENT F2
EXPOSURE SCENARIOS

PUBLIC HEALTH RISK ASSESSMENT
881 HILLSIDE AREA (OU1)
TECHNICAL MEMORANDUM NO. 9
TOXICITY CONSTANTS

Department of Energy
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM
September 1992

EXECUTIVE SUMMARY

This technical memorandum summarizes the relevant toxicity constants for the 22 contaminants of concern (COCs) identified for the Public Health Evaluation (PHE) of the Baseline Risk Assessment (BRA) for Operable Unit No. 1 (OU1) in the 881 Hillside area at the Rocky Flats Plant (RFP). It does not include the Environmental Evaluation (EE) portion of the BRA. Toxicity constants will be used in the risk assessment to evaluate potential adverse effects from exposure to site-related chemicals. Toxicological data from the U.S. Environmental Protection Agency (EPA 1992a,b; 1991) were evaluated to determine the severity of toxic properties associated with the COCs. In this Technical Memorandum, chronic values are presented, since a goal of the PHE is to determine whether long-term exposure to site-related COCs is expected to cause adverse effects in exposed individuals. Chronic effects are a better measure of long-term impacts than acute effects.

COCs were classified into two groups, carcinogens and noncarcinogens, because health risks are calculated differently for these agents. Certain contaminants may have both properties (e.g., 1,1,-dichloroethene and carbon tetrachloride). Potential effects from chronic exposure to noncarcinogenic compounds will be assessed by comparing exposure levels to chronic reference doses (RfDs). Unlike carcinogenic compounds, substances that cause systemic toxicity (i.e., toxic effects other than cancer) appear to do so through mechanisms that include a physiological threshold. A certain dose of a compound (i.e., the RfD dose) must therefore be present before exposed individuals may experience toxic effects. Conversely, potential carcinogenic effects are expressed as the probability (using chemical-specific cancer slope factors, or SFs) that an individual will develop cancer from a lifetime exposure. Cancer SFs for nonradiological compounds represent the 95th percentile confidence limit on the probability of a carcinogenic response, while SFs for radionuclides are best estimates (i.e., median or 50th percentile values).

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LIST OF ACRONYMS AND ABBREVIATIONS

BaP	Benzo(a)pyrene
BRA	Baseline Risk Assessment
COC	Contaminants of Concern
EE	Environmental Evaluation
ECAO	Environmental Criteria Assessment Office
EPA	Environmental Protection Agency
ITEF	International Toxicity Equivalency Factor
IAG	Interagency Agreement
IRIS	Integrated Risk Information System
LOAEL	Lowest Observed Adverse Effect Level
MF	Modifying Factor
mg/kg-d	milligrams per kilogram per day
NOAEL	No Observed Adverse Effect Level
OU1	Operable Unit 1
PAH	Polycyclic Aromatic Hydrocarbons
PHE	Public Health Evaluation
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RFP	Rocky Flats Plant
RPM	Remedial Project Manager
SF	Slope Factor
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
UF	Uncertainty Factor

1.0 INTRODUCTION

1.1 Purpose

The purpose of this technical memorandum is to present the toxicity constants that will be used in the Public Health Evaluation (PHE) of the Baseline Risk Assessment (BRA) for Operable Unit No. 1 (OU1) in the 881 Hillside area located at the Rocky Flats Plant (RFP), as specified in Attachment 2, Section VII.D of the Interagency Agreement (IAG 1991). These toxicity constants will be integrated with calculated daily intakes in the risk characterization portion of the PHE to yield quantitative risk estimates. This memorandum is being submitted prior to submittal of the BRA for OU1 as specified in Attachment 2, Section VII.D of the IAG.

1.2 Scope

The scope of this Technical Memorandum is limited to identifying human toxicity constants for the OU1 contaminants of concern (COCs) identified in *Technical Memorandum No. 8, Contaminant Identification* (DOE 1992). The 22 COCs are identified in Table 1-1. The toxicity constants include reference doses (RfDs) for noncarcinogens and their associated uncertainty factors (UFs) and cancer slope factors (SFs) and weight-of-evidence classifications for carcinogens. Since reference concentrations are not available for the contaminants of concern, noncarcinogenic toxicity will be evaluated based on reference doses. The parameter distributions under development at Oak Ridge National Laboratory are beyond the scope of this technical memorandum and will be presented in the draft PHE. Toxicological profiles for each COC will be presented in the PHE portion of the Phase III RFI/RI Report.

TABLE 1-1

CONTAMINANTS OF CONCERN MATRIX FOR OU1 BY MEDIA

Contaminant	Ground Water	Surface Soil	Surface Water	Sediment
1,1-Dichloroethene	X			
total 1,2-Dichloroethene	X			
1,1,1-Trichloroethane	X			
Acenaphthene		X		X
Americium-241		X	X	X
AROCLOR-1254		X		X
Benzo(a)anthracene		X		X
Benzo(a)pyrene		X		X
Benzo(b)fluoranthene		X		X
Benzo(k)fluoranthene		X		X
Carbon Tetrachloride	X			
Chloroform	X			
Dibenzo(a,h)anthracene		X		X
Dichlorodifluoromethane	X			
Fluoranthene		X		X
Fluorene		X		X
Methylene Chloride	X			
Plutonium-239,-240		X	X	X
Pyrene		X		X
Tetrachloroethene	X			
Trichloroethene	X			
Trichlorofluoromethane	X			

2.0 TOXICITY CONSTANTS FOR OU1

Toxicity assessment evaluates the nature and extent of health effects from exposure to site-related chemicals. It consists of a hazard identification and a dose-response evaluation. The hazard identification involves a comprehensive review of toxicity data to identify the severity of toxic properties associated with the COCs. Once the potential toxicity of a chemical has been established, the next step is to determine the amount of chemical exposure that may result in adverse human health effects (i.e., to establish the dose-response relationship for each COC). Thus, the toxicity assessment evaluates the increased likelihood of adverse health effects as a result of human exposure to site-related contaminants.

OU1 COCs were classified into two broad groups, carcinogens and noncarcinogens, because health risks are calculated differently for these agents. Certain contaminants (e.g., 1,1-dichloroethene and carbon tetrachloride) can have both properties.

The toxicity constants were developed according to the steps presented in the Risk Assessment Guidance for Superfund (RAGS) (EPA 1989). The U.S. Environmental Protection Agency's (EPA) Integrated Risk Information System (IRIS) and *Health Effects Assessment Summary Tables* (EPA 1992 a,b; 1991) were the primary sources of information. Secondary sources of information include: EPA Region IV guidance (EPA 1992c) and Environmental Criteria Assessment Office (ECAO).

2.1 Toxicity Constants for Noncarcinogens

An RfD embodies EPA's principal approach and rationale for assessing health effects other than cancer. Unlike carcinogenic agents, substances that cause systemic toxicity (i.e., toxic effects other than cancer) do so through mechanisms that include a physiological threshold. Thus, a certain dose of a compound must be present before noncarcinogenic toxic effects will be observed. This approach assumes that there is some level of exposure (i.e., the RfD value) that individuals can tolerate without experiencing adverse, systemic

health effects. Conversely, if exposure exceeds this threshold, there may be some concern that exposed individuals will experience noncarcinogenic health effects.

In general, the RfD is an estimate (with an established UF) of a daily exposure to the human population, including sensitive subpopulations, likely to be without appreciable risk of deleterious effects over a lifetime. RfDs are calculated by dividing a NOAEL (No Observed Adverse Effect Level) or a LOAEL (Lowest Observed Adverse Effect Level) dose in milligrams per kilograms per day (mg/kg-day) obtained from human or animal studies by an UF. UFs are used to ensure health protective standards for all segments of a potentially affected population. Each UF generally consists of multiples of ten, with each factor representing a specific area of uncertainty inherent in the extrapolation from the available data. The bases for applying different UFs are explained below:

- If the NOAEL is based on human data, an UF of 10 is usually applied to account for variation in sensitivities among individuals. It is intended to protect sensitive subpopulations (e.g., the elderly and children).
- If the NOAEL is based on animal data, an additional UF of 10 is used to account for the interspecies variability between humans and other animals.
- If the NOAEL is derived from a subchronic instead of a chronic study, an additional UF of 10 is applied to extrapolate a subchronic value to a chronic value.
- If a LOAEL is used instead of a NOAEL, an additional UF of 10 is used to account for the uncertainty associated with extrapolating from LOAELs to NOAELs.

Modifying factors (MFs) may also be applied. MFs range from 1 to 10 and reflect uncertainties not specifically addressed by the above-mentioned UFs. In general, RfDs represent an estimate of the potential toxicity of a chemical and with variability typically spanning one order of magnitude (EPA 1992b). Table 2-1 lists the RfDs and the associated UFs for OU1 noncarcinogens that are currently available from EPA. Inhalation RfDs for 1,1-dichloroethene, chloroform, and trichloroethene are pending in IRIS (EPA 1992a). The

oral RfD for 1,1,1-trichloroethene has been withdrawn from IRIS (EPA 1992a), while oral RfDs for 1,2-cis-dichloroethene and trichloroethene are pending.

TABLE 2-1

NONCARCINOGENIC TOXICITY CONSTANTS

Chemical	Chronic Oral RfD (mg/kg-d)	Uncertainty Factor	Chronic Inhalation RfD (mg/kg-d)	Uncertainty Factor
1,1-Dichloroethene	9×10^{-3}	1,000	P	ND
1,1,1-Trichloroethane	W	ND	ND	ND
1,2-cis-dichloroethene	P	ND	ND	ND
1,2-trans-dichloroethene	2×10^{-2}	1,000	ND	ND
Acenapthene	0.06	3,000	ND	ND
Carbon tetrachloride	7×10^{-4}	1,000	ND	ND
Chloroform	0.01	1,000	P	ND
Dichlorodifluoromethane	0.2	100	ND	ND
Fluoranthene	0.04	3,000	ND	ND
Fluorene	0.04	3,000	ND	ND
Methylene chloride	0.06	100	ND	ND
Pyrene	0.03	3,000	ND	ND
Tetrachloroethene	1×10^{-2}	1,000	ND	ND
Trichloroethene	P	ND	P	ND
Trichlorofluoromethane	0.3	1,000	ND	ND

ND = An inhalation RfD and its associated uncertainty factor for that compound have not yet been determined.
W = Oral RfD has been withdrawn from IRIS (EPA 1992a).
P = An RfD is pending in IRIS (EPA 1992a).
Sources: IRIS (EPA 1992a), EPA (1991), EPA (1992b).

TABLE 2-2

TOXICITY CONSTANTS FOR NONRADIOLOGICAL CARCINOGENS

Chemical	Weight of Evidence	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$	Inhalation Slope Factor $(mg/kg\text{-}day)^{-1}$
1,1-Dichloroethene	C[a]	0.6	0.18[b]
AROCLOR-1254[d]	B2	7.7	ND[c]
Carbon tetrachloride	B2	1.3×10^{-1}	0.05[e]
Chloroform	B2	6.1×10^{-3}	0.08[f]
Methylene chloride	B2	7.5×10^{-3}	1.7×10^{-3}[g]
Tetrachloroethene	B2	NA[h]	NA[h]
Trichloroethene	B2	1.1×10^{-2}	W[i]

[a] Inclusion of Group C carcinogens in quantitative risk estimates is done on a case-by-case basis.
[b] Based on the inhalation unit risk factor of 5×10^{-5} $\mu g/m^3$ in IRIS (EPA 1992a).
[c] ND = A slope factor for this compound and pathway has not yet been determined.
[d] Values are for polychlorinated biphenyls.
[e] Based on the inhalation unit risk factor in IRIS (EPA 1992a) of 1.5×10^{-5} $\mu g/m^3$.
[f] Based on the inhalation unit risk factor in IRIS (EPA 1992a) of 2.3×10^{-5} $\mu g/m^3$.
[g] Based on the inhalation unit risk factor in IRIS (EPA 1992a) of 4.7×10^{-7} $\mu g/m^3$.
[h] According to IRIS (EPA 1992a), carcinogenic data are pending.
[i] The SF for that compound has been withdrawn from IRIS (EPA 1992)

Sources: IRIS (EPA 1992a), EPA (1991), EPA (1992b).

The majority of PAHs found in the environment appear to be less toxic than BaP. Exceptions include methylated PAHs and those containing oxygen and nitrogen. Currently, EPA has not specified SFs for PAHs other than BaP. In the past, risk assessors have assumed that all PAHs are equally as toxic as BaP. Recently, risk assessors have proposed using a toxicity equivalency factor (TEF) approach for determining the carcinogenicity of PAHs using BaP as the reference point. EPA's ECAO office recommended that individual

RPMs and Regions use their best judgment when deciding to use a TEF approach for risk assessments involving PAHs. Cancer SFs for PAHs of concern were derived using the TEF approach adopted by EPA Region IV (February 1992) (Table 2-3). SFs derived for the five PAHs of concern for OU1 are shown in Table 2-3.

TABLE 2-3

TOXICITY CONSTANTS FOR POLYCYCLIC AROMATIC HYDROCARBONS

PAH	TEF[a]	Oral Slope Factor[b] $(mg/g\text{-}day)^{-1}$	Inhalation Slope Factor $(mg/kg\text{-}day)^{-1}$
Benzo(a)pyrene	1.0	5.8	NA
Benzo(a)anthracene	0.1	0.58	NA
Benzo(b)fluoranthene	0.1	0.58	NA
Benzo(k)fluoranthene	0.1	0.58	NA
Dibenzo(a,h)anthracene	1.0	5.8	NA

[a] Toxicity Equivalency Factor (TEF) approach adopted by Region IV (February 1992).

[b] Oral slope factors were derived by multiplying the oral slope factor for BaP of 5.8 $(mg/kg\text{-}day)^{-1}$ times the TEF listed in column two for each PAH.

2.2.2 Toxicity Constants for Radionuclides

An extensive body of literature exists that describes the health effects of radionuclides on humans and animals. Intensive research by national and international commissions has resulted in the establishment of universally accepted limits to which workers and the public may be exposed without clinically detectable effects. This literature has resulted in EPA classifying all radionuclides as Group A carcinogens because they emit ionizing radiation, which, at high doses, has been associated with increased cancer incidence in humans. Data derived from both human and animal studies are used by EPA to construct the radionuclide SFs, which are listed in Table 2-4. These non-threshold SFs account for the following: (1) the amount of radionuclide transported into the bloodstream; (2) the decay of radioactive progeny within the body; (3) the distribution and retention of the radionuclide and its

progeny (if any) in the body; (4) the radiation dose delivered to specific organs and tissues; and (5) the age and sex of the exposed individuals (EPA 1992b).

As in the chemical risk models, radiation models extrapolate cancer risks at low doses from risks observed at higher doses using non-threshold, linear dose-response relationships. Because of the radiation risk models employed, SFs for radionuclides are characterized as best estimates (i.e., median or 50th percentile estimates) of the age-averaged lifetime excess cancer risk (fatal and non-fatal) per unit of activity inhaled or ingested.

TABLE 2-4

TOXICITY CONSTANTS FOR RADIONUCLIDES

COC	Weight of Evidence	Oral Slope Factor $(pCi)^{-1}$	Inhalation Slope Factor $(pCi)^{-1}$
Americium - 241	A	2.4×10^{-10}	3.2×10^{-8}
Plutonium - 239, 240	A	2.3×10^{-10}	3.8×10^{-8}

Source: EPA (1992b).

REFERENCES

DOE, 1992. *Public Health Evaluation, 881 Hillside Area (OU1), Draft Technical Memorandum No. 8, Contaminant Identification*, U.S. Department of Energy, Rocky Flats Plant, September 1992.

IAG, 1991. *Rocky Flats Interagency Agreement between the State of Colorado, the Environmental Protection Agency, Environmental Protection Agency, and the Department of Energy*, January 1991.

U.S. Environmental Protection Agency (EPA), 1991. *Health Effects Assessment Summary Tables, Annual FY-1991*, OERR 9200.6-303(91-1), PB91-921199, Office of Emergency and Remedial Response, Washington, DC.

U.S. Environmental Protection Agency (EPA), 1992a. *Integrated Risk Information System*, (IRIS).

U.S. Environmental Protection Agency (EPA), 1992b. *Health Effects Assessment Summary Tables*, OHEA-ECOA-CIN-821, Office of Research and Development, Washington, DC.

U.S. Environmental Protection Agency (EPA) Region IV, 1992c. *New Interim Region IV Guidance*, Atlanta, GA.

U.S. Environmental Protection Agency (EPA), 1989. *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)*, EPA 540/1-89-002, Office of Emergency and Remedial Response, Washington, DC.

2.2 Toxicity Constants for Carcinogens

Numerical estimates of potency for potential carcinogens are presented as cancer SFs. Cancer SFs and the estimated chronic daily intake of a compound, averaged over a lifetime of exposure, are used to estimate the incremental risk that an individual exposed to that compound may develop cancer. Evidence of carcinogenicity comes from two sources: lifetime studies with laboratory animals and human studies where excess cancer risk is associated with exposure to a carcinogen. For most carcinogens, animal data from laboratory experiments represent the primary basis for developing toxicity constants. If a carcinogenic response occurs at the exposure level used in the studies, it is assumed that a similar response will occur at all lower doses, unless evidence to the contrary exists. Exposure to any level of a chemical carcinogen is therefore assumed to have a finite risk of inducing cancer. This mechanism for carcinogenesis is referred to as stochastic, which means that there is theoretically no level of exposure to this material that does not pose a small, but finite, probability of generating a carcinogenic response.

Since risks at low levels of exposure cannot be quantified directly from either animal or epidemiological studies, mathematical models are typically used to extrapolate from high to low doses. A linearized multistage model for low-dose extrapolation has been promulgated and approved by EPA (1986). Use of this model provides a health-protective, upper-bound (conservative) estimate of risk.

Uncertainty in assessing the carcinogenicity of a chemical is managed by grouping chemicals into one of several groups according to the weight of evidence from epidemiological studies and/or animal studies:

Group A - Human Carcinogen (sufficient evidence of carcinogenicity in humans)

Group B - Probable Human Carcinogen (B1-limited evidence of carcinogenicity in humans; B2-sufficient evidence of carcinogenicity in animals with inadequate or absence of evidence in humans)

Group C - Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or no human data)

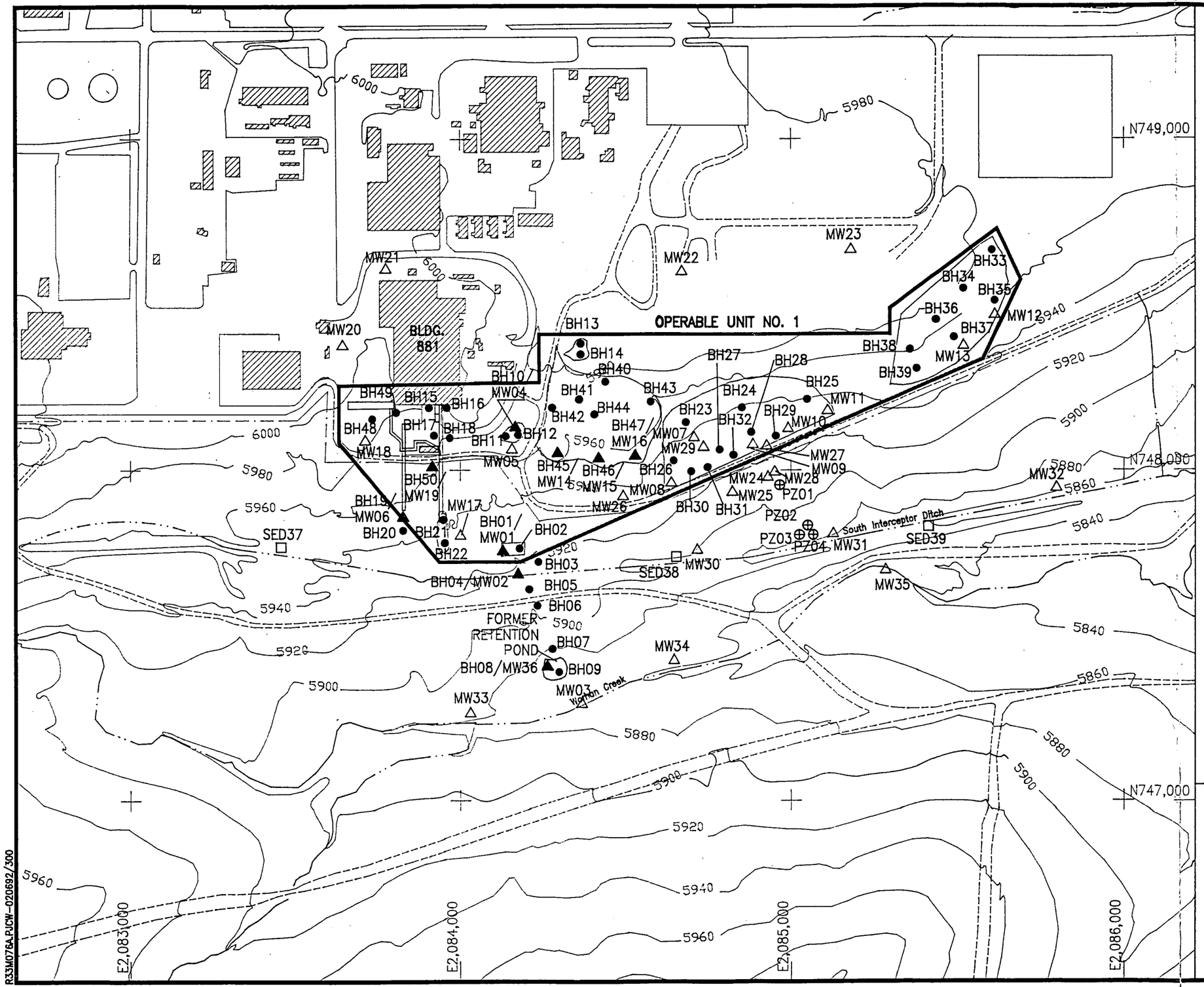
Group D - Not Classifiable as to Human Carcinogenicity (inadequate or no evidence)

Group E - Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies)

Carcinogenic COCs for OU1 were divided into two groups: nonradiological carcinogens and radionuclides. These distinctions were made because cancer SFs for radionuclides and nonradionuclides are derived differently (see Sections 2.2.1 and 2.2.2) and have different units $(mg/kg\text{-}day)^{-1}$ versus picocuries $(pCi)^{-1}$. In addition, polycyclic aromatic hydrocarbons (PAHs) have been identified as a subset of nonradionuclides because they are derived using a toxicity weighting scheme based on the measured value of benzo(a)pyrene (BaP).

2.2.1 Toxicity Constants for Nonradiological Carcinogens

Assuming a linear dose-response relationship at low doses of chemical exposure, the SF for nonradiological carcinogens defines the probability that an individual will develop cancer from a lifetime exposure to one unit of carcinogen. Because these SFs represent the 95th percentile confidence limit on the probability of a carcinogenic response, risk estimates are upper-bound values. Thus, there is only a 5 percent probability that the actual risk is greater than the estimated risk. Cancer risk assessment in this context yields upper-bound risk estimates. Individual cancer risk will be calculated as the product of exposure to a chemical (in mg/kg-day) and the SF for that chemical (in $[mg/kg\text{-}day]^{-1}$). Cancer risks from exposure to multiple carcinogens across all exposure pathways will be summed. Table 2-2 lists the toxicity constants that have been determined for nonradiological carcinogens.



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Rocky Flats Plant, Golden, Colorado

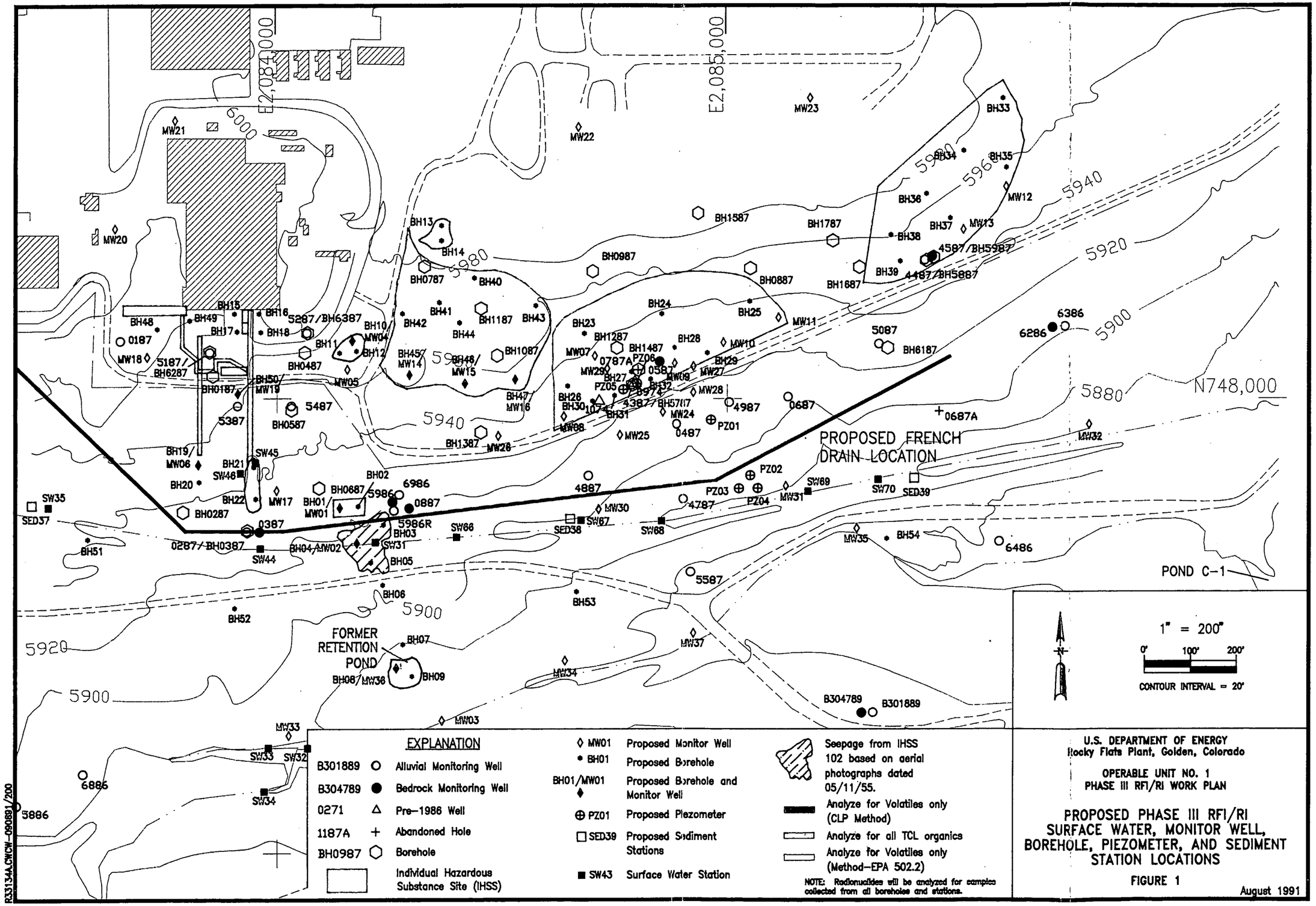
OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

PHASE III RFI/RI
MONITOR WELL, BOREHOLE, PIEZOMETER, AND SEDIMENT STATION LOCATIONS

FIGURE 1-1

February, 1992

R33M0776A.PJ/CW-020692/300



U.S. DEPARTMENT OF ENERGY
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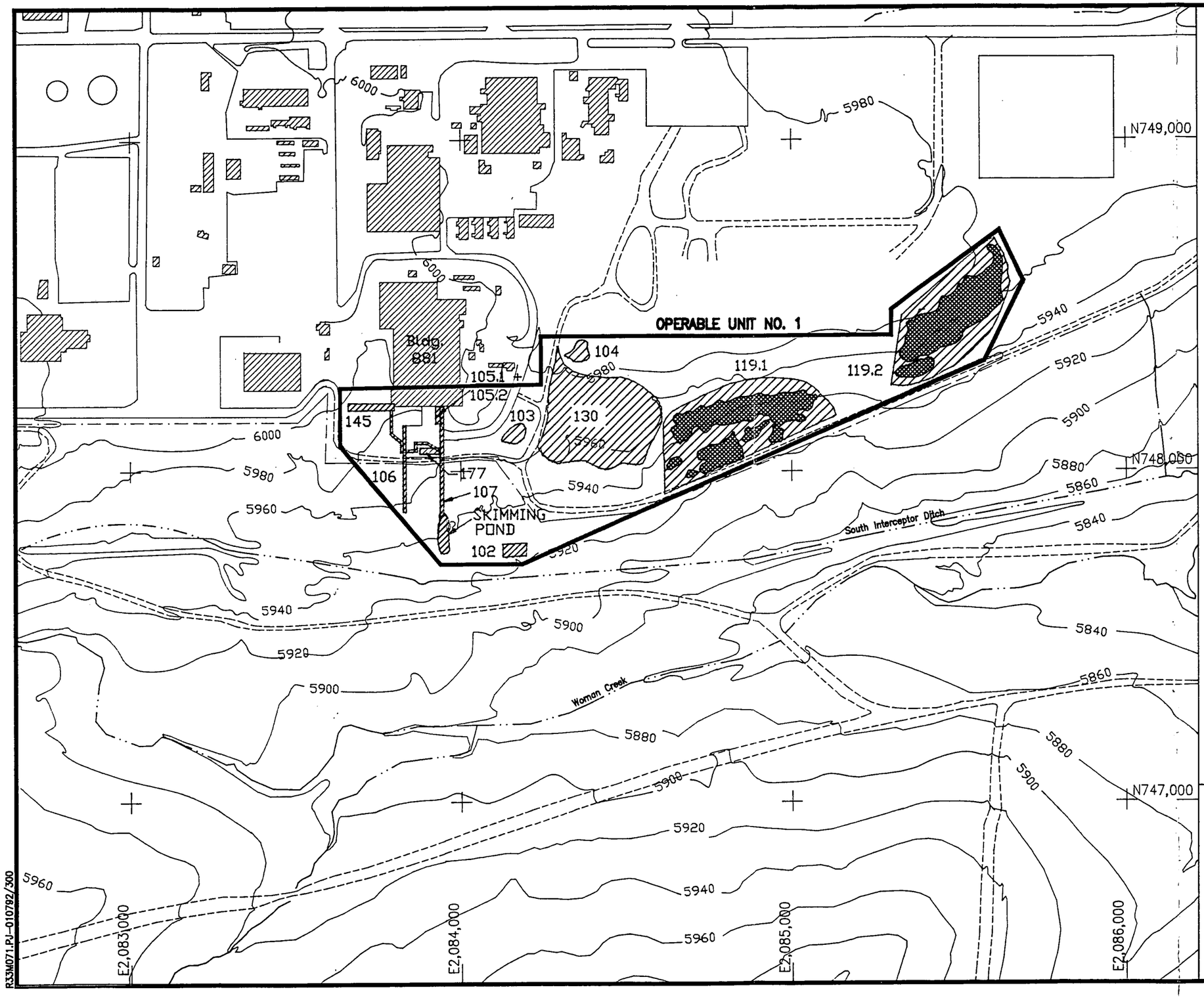
OPERABLE UNIT NO. 1
PHASE III RFI/RI WORK PLAN

PROPOSED PHASE III RFI/RI SURFACE WATER, MONITOR WELL, BOREHOLE, PIEZOMETER, AND SEDIMENT STATION LOCATIONS

FIGURE 1

August 1991

R33134A.CWCW-090891/200



EXPLANATION

Individual Hazardous Substance Site (IHSS)

145 IHSS Designation

Maximum Extent of IHSS 119 Barrel Storage Based on Aerial Photographs dated 04/29/67, 04/10/68, 05/24/69, and 03/30/71.

N

Scale: 1" = 300'

0' 150' 300'

CONTOUR INTERVAL = 20'

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

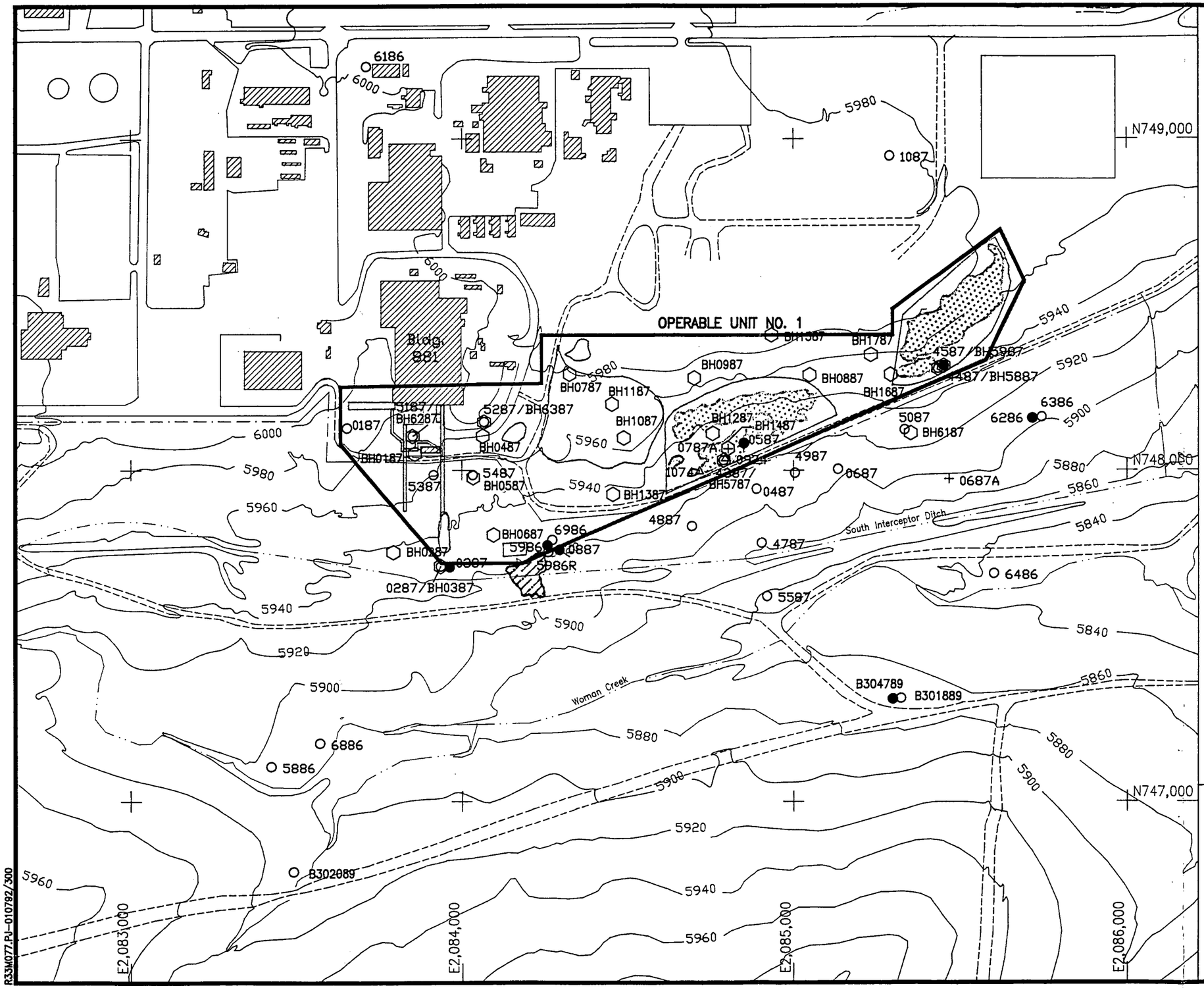
OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

INDIVIDUAL HAZARDOUS SUBSTANCE SITE LOCATIONS

FIGURE 1-2

February, 1992

R33M071.PJ-010792/300



EXPLANATION

B301889	○	Alluvial Monitoring Well
B304789	●	Bedrock Monitoring Well
0271	△	Pre-1986 Well
1187A	+	Abandoned Hole
BH0987	⬡	Borehole

Seepage from IHSS 102 Based on Aerial Photographs Dated 05/11/55.

Maximum Extent of IHSS 119 Barrel Storage Based on Aerial Photographs dated 04/29/67, 04/10/68, 05/24/69, and 03/30/71.

Individual Hazardous Substance Site (IHSS)

N

Scale: 1" = 300'

0' 150' 300'

CONTOUR INTERVAL = 20'

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

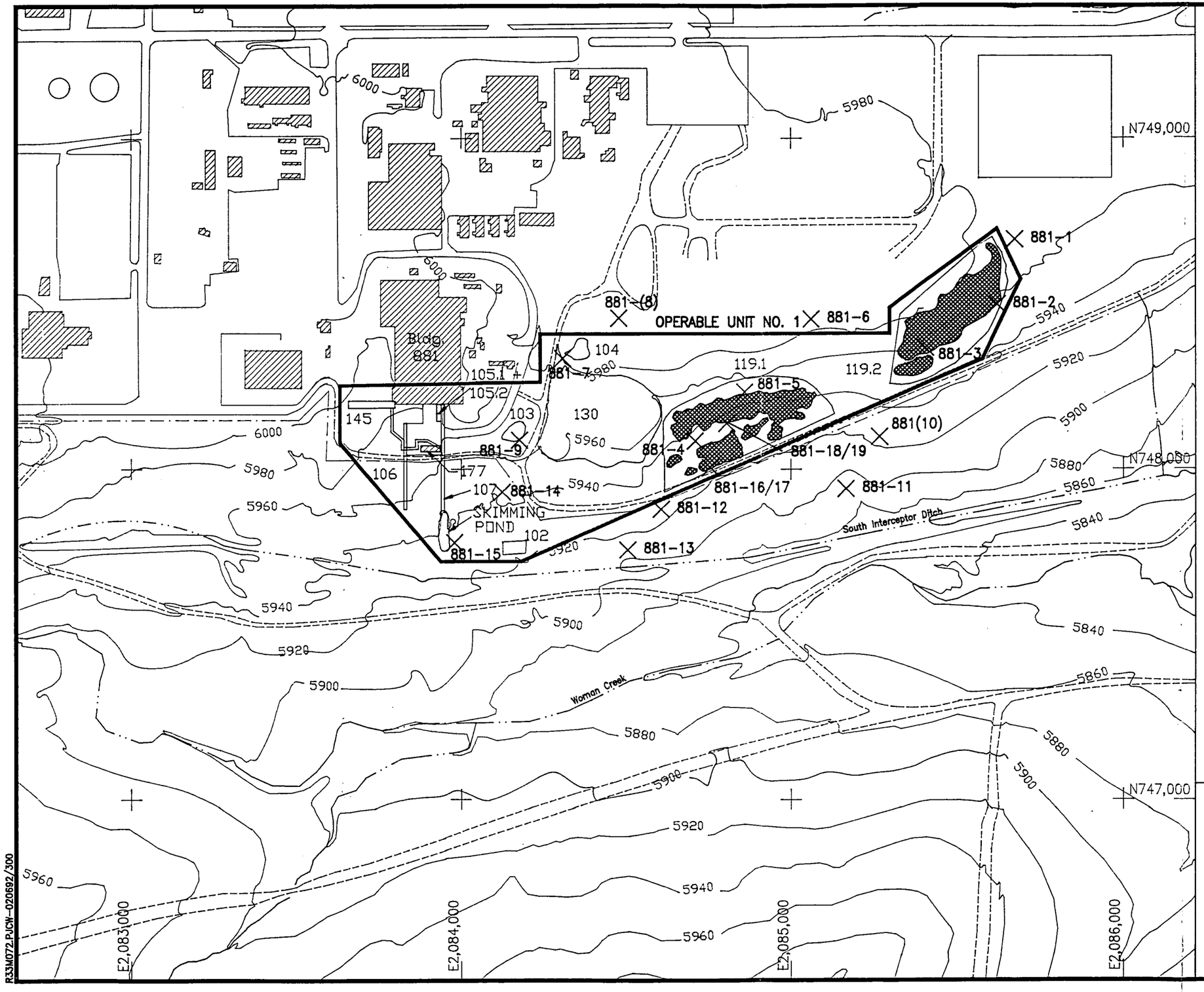
OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

PHASE I AND PHASE II RI BOREHOLE AND MONITOR WELL LOCATIONS

FIGURE 1-3

February, 1992

R33M077.PJ-010792/300



EXPLANATION

- Individual Hazardous Substance Site (IHSS)
- 145 — IHSS Designation
- Maximum Extent of IHSS 119 Barrel Storage Based on Aerial Photographs dated 04/29/67, 04/10/68, 05/24/69, and 03/30/71.
- 881-1 — Approximate Surface Soil Scrape Location

N

Scale: 1" = 300'

0' 150' 300'

CONTOUR INTERVAL = 20'

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

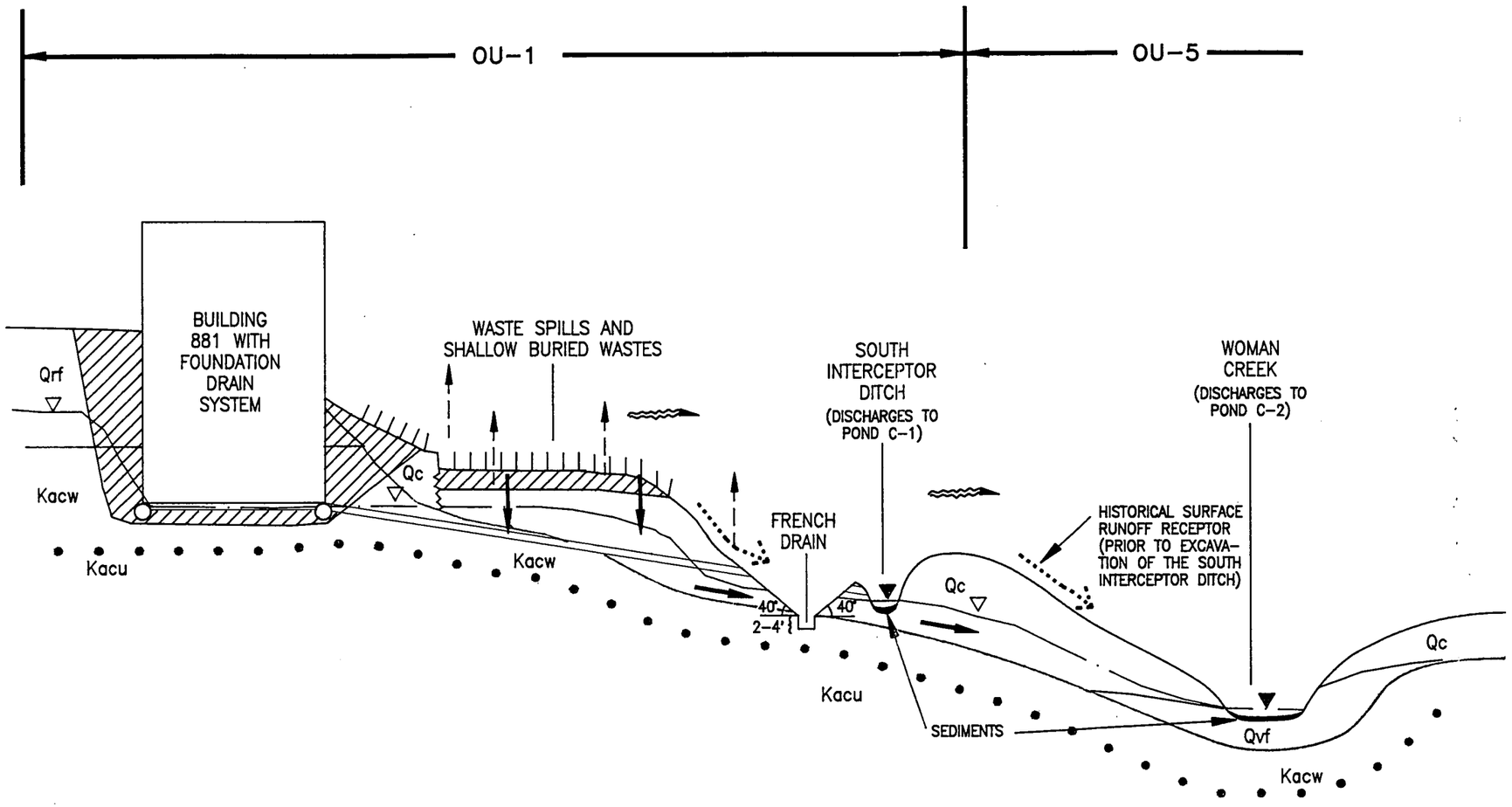
OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

SURFACE SCRAPE SAMPLING LOCATIONS (September 1988)

FIGURE 1-4

February, 1992

R33M072.PJCW-020692/300



EXPLANATION

- Contact Between Surficial Materials
- Base of Weathering and Boundary between Hydrostratigraphic UKnits
- Disturbed Ground
- Volatization
- Potential Ground-water Pathway
- Potential Radionuclide Contaminated Soils
- Wind Blown Pathway (resuspension)
- Stream Surface
- Groundwater Surface
- Surface Runoff Pathway
- Sediments

CRETACEOUS ARAPAHOE FORMATION

Kacu Unweathered Claystone/Siltstone
Kacw Weathered Claystone/Siltstone

QUATERNARY UNITS

Qrf Rocky Flats Alluvium
Qc Colluvium Deposits
Qvf Valley Fill Alluvium

SCHEMATIC CROSS-SECTIONAL VIEW

NOT TO SCALE

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

CONCEPTUAL MODEL

FIGURE 1-5

February, 1992

R33168.PJ-010892

EXPLANATION

ESTIMATED MAXIMUM EXTENT OF SURFICIAL SOILS CONTAINING TWO dpm/g ACTIVITY BY CDH PROTOCOL

25 — 10 ACRE SAMPLING PLOT LOCATIONS

25 — 10 ACRE SAMPLING PLOT LOCATIONS NORTH AND SOUTH OF OPERABLE UNIT 2

25 — 2.5 ACRE SAMPLING PLOT LOCATIONS

98 — SOIL TYPE BOUNDARY AND NUMBER

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, 1980

SOIL TYPE NUMBER	SERIES
27	DENVER
29	DENVER–KUTCH
31	DENVER–KUTCH–MIDWAY
42	ENGLEWOOD
45	FLATIRONS
60	HAVERSON
80	LEYDEN–PRIMEN–STANDLEY
98	MIDWAY
100	NEDERLAND
102	NUNN
103	NUNN
149	STANDLEY–NUNN
174	WILLOWMAN–LEYDEN

N

1" = 1000'

0' 500' 1000'

CONTOUR INTERVAL = 20'

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

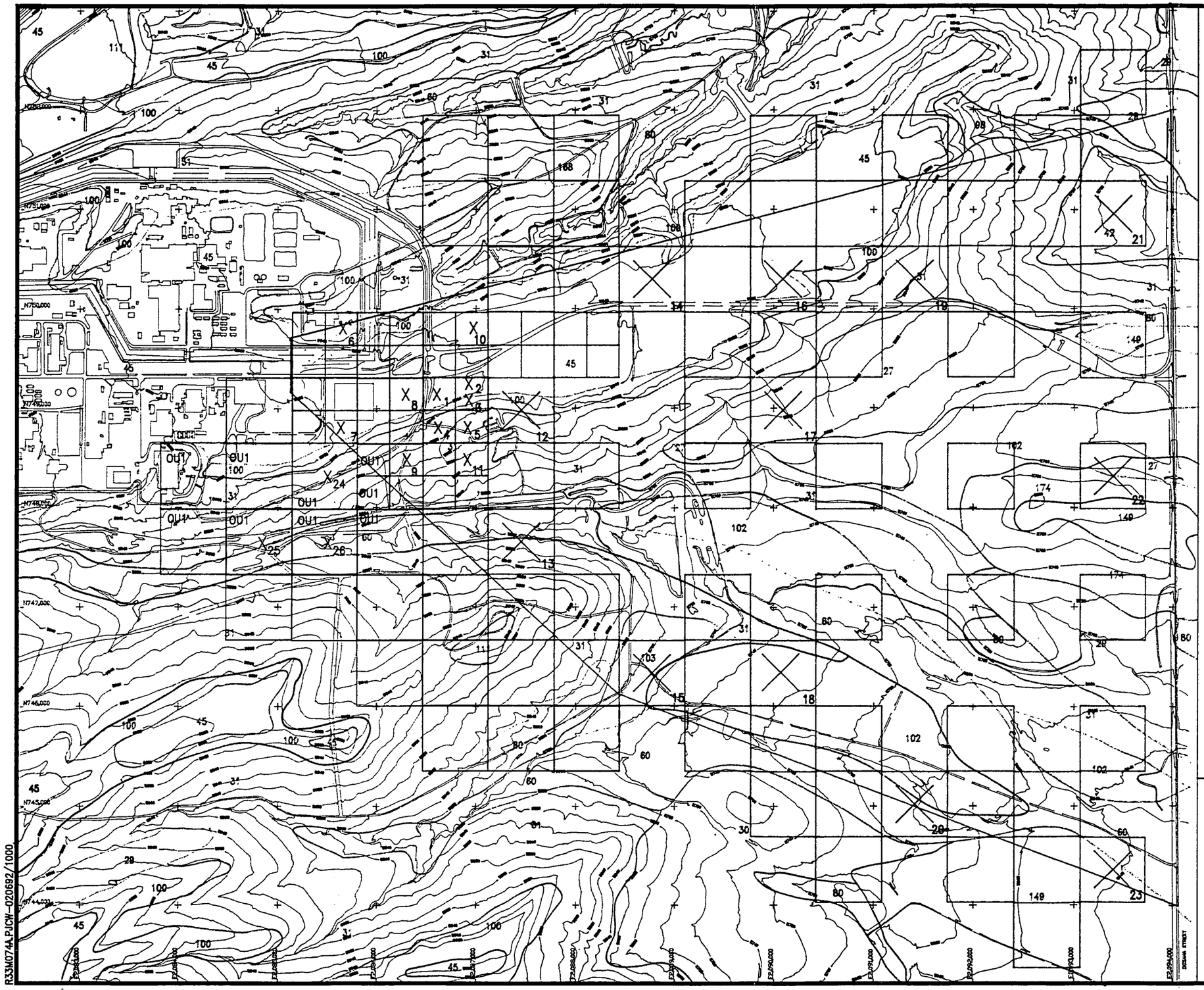
OPERABLE UNITS NO. 1 AND 2
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

SURFICIAL SOIL SAMPLING PLOT IDENTIFICATION NUMBERS

FIGURE 2–1

February, 1992

R33M073A.PJcw–020692/1000



EXPLANATION

- ESTIMATED MAXIMUM EXTENT OF SURFICIAL SOILS CONTAINING TWO dpm/g ACTIVITY BY CDH PROTOCOL
- 10 ACRE SAMPLING PLOT LOCATIONS
- 10 ACRE SAMPLING PLOT LOCATIONS NORTH AND SOUTH OF OPERABLE UNIT 2
- 2.5 ACRE SAMPLING PLOT LOCATIONS
- X_1 to X_5 — LOCATION OF SOIL SOLUTION SAMPLERS
- X_6 to X_{23} — SOIL PROFILE SAMPLING LOCATIONS FOR OPERABLE UNIT NO. 2
- X_{24} to X_{26} — SOIL PROFILE SAMPLING LOCATIONS FOR OPERABLE UNIT NO. 1
- 98 — SOIL TYPE BOUNDARY AND NUMBER

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, 1980

SOIL TYPE NUMBER	SERIES
27	DENVER
29	DENVER–KUTCH
31	DENVER–KUTCH–MIDWAY
42	ENGLEWOOD
45	FLATIRONS
60	HAVERSON
80	LEYDEN–PRIMEN–STANDLEY
98	MIDWAY
100	NEDERLAND
102	NUNN
103	NUNN
149	STANDLEY–NUNN
174	WILLOWMAN–LEYDEN

N

1" = 1000'

0' 500' 1000'

CONTOUR INTERVAL = 20'

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

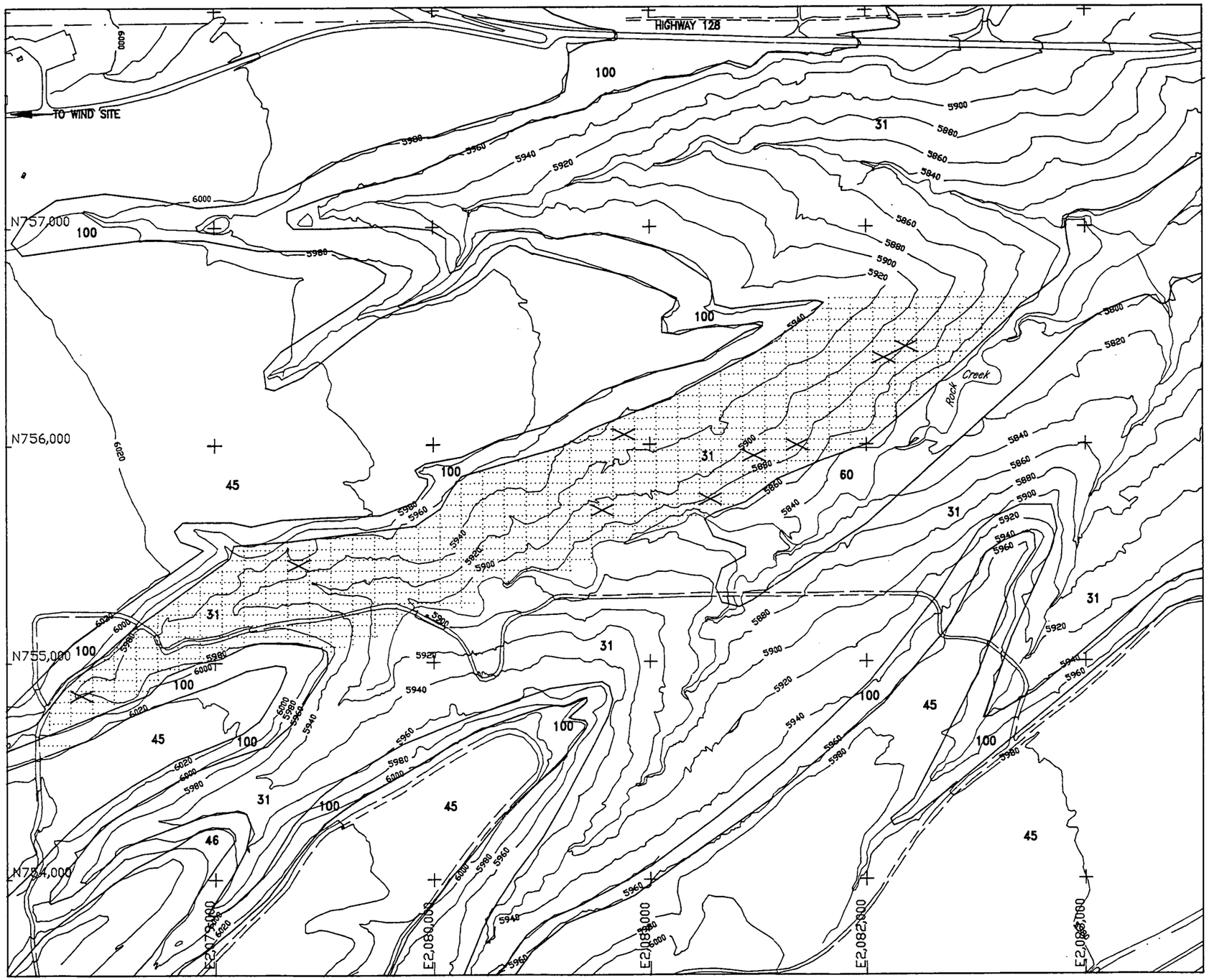
OPERABLE UNITS NO. 1 AND 2
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

SURFICIAL SOIL SAMPLING LOCATIONS

FIGURE 2–3

February, 1992

R33M074A.PJCW–020692/1000



EXPLANATION

100 — SOIL TYPE BOUNDARY AND NUMBER

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, 1980

SOIL TYPE NUMBER	SERIES
31	DENVER–KUTCH–MIDWAY
45	FLATIRONS
46	FLATIRONS
60	HAVERSON
100	NEDERLAND

PROPOSED SURFICIAL SOIL POLYGON (100' X 50')

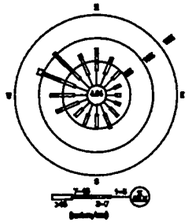
BACKGROUND SURFACE SOIL SAMPLING LOCATIONS

N

Scale: 1" = 500'

0' 250' 500'

CONTOUR INTERVAL = 20'



RFP 1990 WIND ROSE
SOURCE: EG&G, 1990d

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

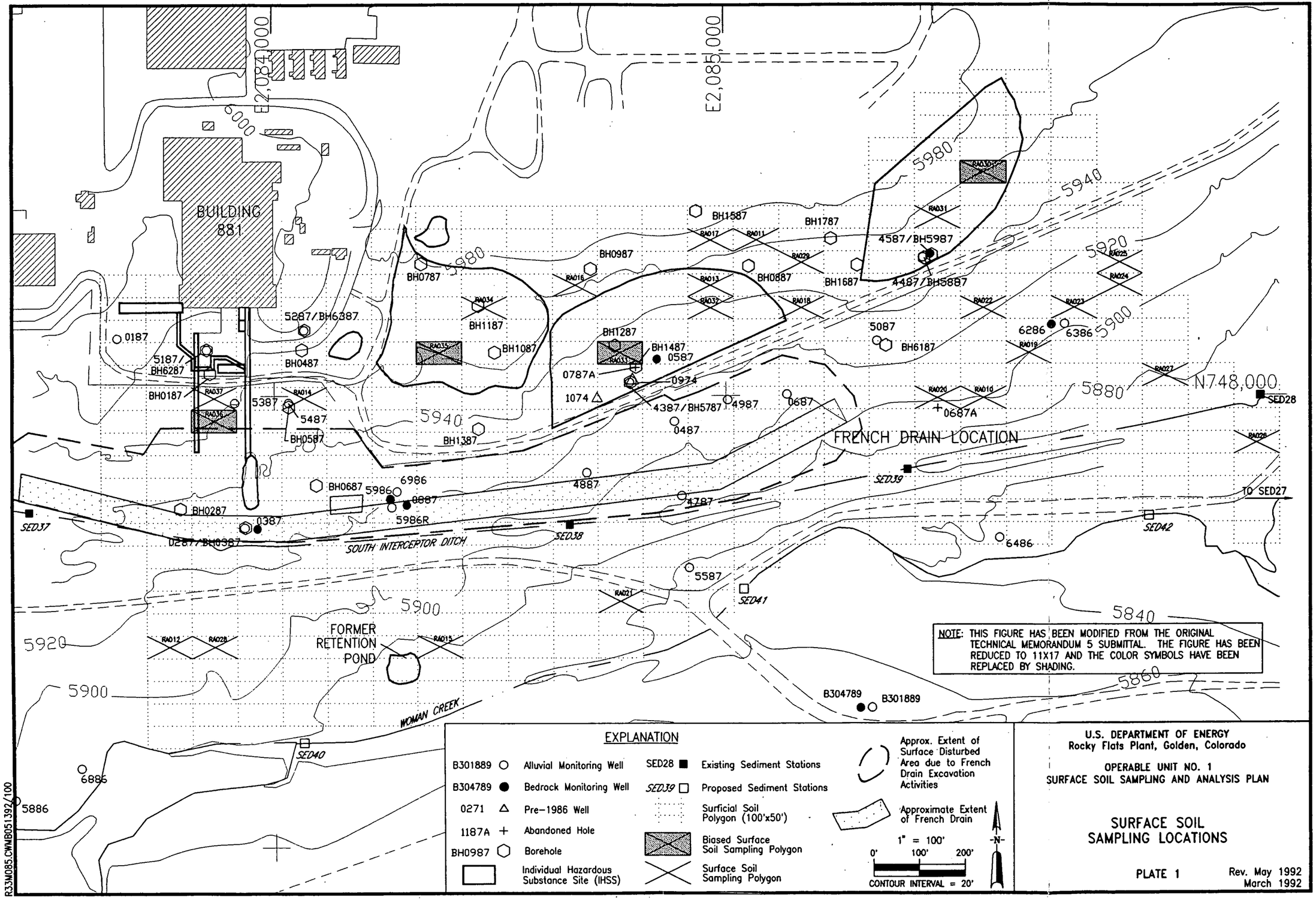
OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

BACKGROUND SURFACE SOIL SAMPLE AREA

FIGURE 2–5

February, 1992

R33M078.PUCW–011392/500



NOTE: THIS FIGURE HAS BEEN MODIFIED FROM THE ORIGINAL TECHNICAL MEMORANDUM 5 SUBMITTAL. THE FIGURE HAS BEEN REDUCED TO 11X17 AND THE COLOR SYMBOLS HAVE BEEN REPLACED BY SHADING.

EXPLANATION

- B301889 ○ Alluvial Monitoring Well
- B304789 ● Bedrock Monitoring Well
- 0271 △ Pre-1986 Well
- 1187A + Abandoned Hole
- BH0987 ⬡ Borehole
- Individual Hazardous Substance Site (IHSS)
- SED28 ■ Existing Sediment Stations
- *SED39* □ Proposed Sediment Stations
- Surficial Soil Polygon (100'x50')
- Biased Surface Soil Sampling Polygon
- Surface Soil Sampling Polygon
- Approx. Extent of Surface Disturbed Area due to French Drain Excavation Activities
- Approximate Extent of French Drain

1" = 100'

0' 100' 200'

CONTOUR INTERVAL = 20'

N

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant, Golden, Colorado

OPERABLE UNIT NO. 1
SURFACE SOIL SAMPLING AND ANALYSIS PLAN

SURFACE SOIL SAMPLING LOCATIONS

PLATE 1

Rev. May 1992
March 1992

R33W085.CWMB051392/100

R74271..MB090193/200

North Plains Community Plan Study Area Summary Map

AREA	TYPE OF LAND USE
1	Cemetery
2	Existing Parks and Recreation Areas, Schools
5	Open Space, Parks and Recreation Areas, Agriculture, Ranching, and Residential up to 1 du/10 ac
6	Residential up to 4 du/ac
7	Light Industrial
8	Retail and Office
9	Residential up to 4 du/ac
10	Business Park, i.e., Office, Light Industrial
11	Aviation Use, Jefferson County Airport, Business Park, i.e., Office, Light Industrial
12	Business Park, i.e., Office, Light Industrial
13	Residential up to 2 du/ac
14	Business Park, i.e., Office, Light Industrial
15	Business Park, i.e., Office, Light Industrial
16	Residential up to 2.5 du/ac
17	Residential up to 10 du/ac
18	Infill Area. Retail, Office, Light Industrial
19	Infill Area. Retail, Office and Light Industrial, Residential up to 15 du/ac
20	Infill Area. Recreational Vehicle Parks, Retail, Office, Light Industrial, Residential up to 15 du/ac
21	Mixed Use Area. A balance of Office, Light Industrial, Retail, Community Facilities, Residential
22	Office
23	Residential up to 2.5 du/ac outside existing Retail, Office and Industrial areas
24	Residential up to 3 du/ac
25	Residential up to 3.5 du/ac
26	Residential up to 2.5 du/ac
27	Residential up to 2 du/ac adjacent to Van Bibber floodplain
28	Residential up to 2.2 du/ac
29	Residential up to 2.7 du/ac
30	West 64th Avenue and McIntyre Street Activity Center. Residential up to 15 du/ac, Retail, Office, Light Industrial
31	Golf Course, Open Space and Residential up to 4 du/ac, neighborhood-scale Retail and Office development of approximately 100,000 square foot north of West 64th Avenue
32	Residential up to 1.5 du/ac
33	Residential up to 1 du/ac
34	Open Space, Conservation because Geologic Hazard Area exists
35	Residential 1 du/5 to 35 ac, Office and limited Retail, Research and Development, Open Space and Trails
36	Residential up to 4 du/ac, Neighborhood-scale Retail and Office development up to 150,000 square foot in one quadrant of the West 58th Avenue and Colorado State Highway 93 intersection
37	Activity Center. Residential up to 10 du/ac, Light Industrial, Office, Retail, and Tourist Services
38	Residential up to 2.5 du/ac
39	Residential 1 du/5 to 35 ac
40	Residential up to 4 du/ac, Retail and Office up to a 1500 foot radius of West 64th Avenue and W-470 Interchange, west of Colorado State Highway 93
41	Office, Industrial
42	Special Use Area. Office and Industrial if hazards can be mitigated
43	Residential up to 1 du/2 ac
44	Mixed Use. Office, Light Industrial, Residential up to 4 du/ac
45	Office, Industrial
46	Special Use Area. Office, Industrial if hazards can be mitigated
47	Office, Light Industrial, Golf Course, and limited Residential up to 4 du/ac
48	Office, Industrial; Retail approximately 1500 feet around the W-470 and Indiana Street and W-470 and West 104th Avenue Interchanges
49	Retail, Office
50	Equestrian center, Residential 1 du/2 ac
51	Mixed Use Area. Residential up to 1 du/2 ac, Office, Light Industrial
52	Special Use Area. Rocky Flats Nuclear Facility and buffer zone

Enclaves: Residential up to 4 du/ac or existing zoning, whichever is greater. If adjacent land use is non-residential, then a similar land use could be considered provided adverse impacts are mitigated

NOTES: du/ac: dwelling units per acre

Ranching and Agriculture land uses, if consistent with current zoning, are permitted anywhere in the North Plains.

Ancillary retail is allowed in all office/industrial areas unless explicitly precluded.

Refer to specific Subarea policies for conditions affecting development in areas shown on the Summary Map and legend. In addition, the General Policies Section of this plan applies.

N

Nonresidential: Retail, or Office, or Industrial

Open Space & Rural Residential 1 du/5 to 35 acres

Residential up to 4 du/ac

Residential up to 1 du/2 ac

Enclaves

Sanitary Landfills

Zoned for Mining

FIGURE 3-4

JEFFERSON COUNTY

City of Arvada

JCMD NO. 1
Jefferson Center Metropolitan District No. 1

Jefferson CENTER Associates

Jefferson Center Comprehensive Development Plan

FIGURE 3-5

Legend

- C/OF — Commercial and Office
- I/OF — Industrial and Office
- MU — Mixed-Use: A B or C
- R — Residential (A, B or C)
- AG — Agricultural
- OS — Open Space
- SU — Special Use
- W-470
- Arterial Roadways
- Collector Roadways
- Existing Roadways
- Jefferson Center Development Area

Approval

Jefferson County
By: Harriet E. Crockett Date: 9/15/89
Title: Chairman of the Board of the County Commissioners
ATTEST:
By: [illegible] Deputy Date: 8-15-89
Title: County Clerk and Recorder

City of Arvada
By: [illegible] Date: 8-14-89
Title: Mayor
ATTEST:
By: [illegible] Date: 8-14-89
Title: City Clerk

Jefferson Center Metropolitan District No. 1
By: Howard W. Lacy Date: 11/7/89
Title: President
ATTEST:
By: [illegible] Date: 11-9-89
Title: Secretary

Jefferson Center Associates
By: Howard W. Lacy Date: 8/17/89
Title: President
ATTEST:
By: Brian Nickerson Date: 8/14/89
Title: Vice President

NORTH

0 1,000 3,000 6,000
Scale: 1" = 2000'-0"

August 1, 1989

The W-470 alignment and interchanges are under study and subject to change. Upon more detailed analysis, the alignment may shift to better fit specific topographic conditions.

OU01-A-000654

FIGURE 3-3