EG&G ER Department
Rocky Flats Plant

(10/24/90)

ER DEPARTMENT DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8905L442 (partial)* **Site** Solar Ponds

Laboratory Roy F. Weston - Lionville **No. of Samples/Matrix** 6/Water

EPA Method # Methods 8010 and 8020 (SW-846) **Reviewer Org.** TechLaw, Inc.

Sample Numbers TB051989A, TB052289002, SW095002, SW094002, SW094002D, SW094002FB

* Other samples from this batch were analyzed by the EPA-CLP Statement of Work 2/88 and previously reported.

Data Assessment Summary

		VOA	Comments
1.	Holding Times	V	
2.	GC/MS Tune/Instr. Perf.	N/A *	
3.	Calibrations	A	Action Items 1,2
4.	Blanks	A	Action Item 3
5.	Surrogates	A	Action Item 4
6.	Matrix Spike/Dup.	X	Comment 1
7.	Other QC	X	Comments 2,3
8.	Internal Standards	N/A *	
9.	Compound Identification	X	Comment 4
10.	System Performance	X	Comments 5,6,7,8,9,10
11.	Overall Assessment	A	Data acceptable with qualifications.

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

* N/A = Not applicable to GC Methods

Data Quality: Data contained in this batch were reviewed and found to be acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Data Summary Table.) Please Note: No reportable results are listed in the spaces reserved for several compounds in the Data Summary Table since these compounds cannot be determined by Methods 8010 and 8020.

REVIEWED FOR CLASSIFICATION

1 By: [signature]

Date: 10/08/91

905L442v/voa

A-OU04-000066

Action Items: 1) Most of the compounds in the initial calibration of 5/19/89 exhibited %RSDs greater than 20% (criteria referenced in the analytical methods), with the exception of 1,2-Dichloroethene, 1,2-Dichloroethane, Bromodichloromethane, both cis and trans isomers of 1,3-Dichloropropene, Bromoform, and 1,1,2,2-Tetrachloroethane. Positive results are estimated (J) and non-detects are estimated and undetected (UJ) for all samples except the compounds discussed above.

2) Some compounds exceeded the 15 %D criteria in the continuing calibrations of 5/27/89 and 5/30/89. The results have been previously qualified as specified in Action Item 1.

3) As a result of method blank contamination, the positive 5/26/89 blank result for 1,2-Dichloroethane and Methylene Chloride are noted even though the samples have non-detected results. Both Methylene Chloride and 1,2-Dichloroethane showed positive values calculated above the laboratory detection limits from the raw data and are listed on the Data Summary Table.

4) Since the surrogate recoveries of aaa-Trifluorotoluene were found outside the laboratory control limits, the non-detected aromatic results (except Chlorobenzene) in all samples would be estimated and undetected (UJ) had the initial calibration criteria been met. The results which were calculated by using the 100 ng standard of the initial calibration (as per the laboratory correspondence of 8/3/90), were also applied to verify the surrogate recoveries in the GC Data Summary Table (listed in the data package), as referenced in both analytical methods to paragraph 7.4.2, Method 8000, Test Methods for Evaluating Solid Waste, SW-846. A one-point calibration from the continuing calibrations, does not follow the method because the %D value of the aaa-Trifluorotoluene surrogate exceeded the 15 %D criteria.

Comments: 1) Trichloroethene percent recovery was found above QC control limits for sample SW094002 matrix spike. No action is necessary as other spike recovery results were within limits and good comparison was observed between the matrix spike/matrix spike duplicate results.

2) No evidence was found for Tetrachloroethene in sample SW094002FB raw data. Therefore, the positive result found in the GC Data Summary is considered a transcription error. The result is changed to a non-detect.

Comments: (cont) 3) Although no further action is necessary to qualify continuing calibration %D results due to gas standards not being added for this calibration, the quality control performance of the gaseous compounds cannot be measured on a daily basis without running these standards.

4) Additional organic compounds which are not found on the CLP Target Compound List, but which are analyzed by using Methods 8010/8020, were not detected in this batch.

5) Most peaks on chromatograms of the calibration standards appeared as truncated (off scale) for all halogenated organic HGT results and the aromatic volatile concentration results, HGT 40 through HGT 200. Accurate peak integration may be affected.

6) The Photoionization detector (PID) demonstrated a notable decrease in efficiency and possibly affected the aaa-Trifluorotoluene surrogate recoveries mentioned in the case narrative. The surrogate mentioned above may also be affected as shown in the HGT 100 result from the 5/27/89 and 5/30/89 continuing calibrations.

7) The 602+ Xylene standard mix should have been incorporated to generate Xylene HGT 100 values for the 5/27/89 continuing calibration. No further action is necessary.

8) With the exception of TB051989A and SW094002FB, all other samples run on 5/30/89 and designated as REPREPS (GC Data Summary in the package), are reported on the Data Summary Table as the most representative results. The Repreps were necessary due to the retention time shift of target compounds caused by exhausted Helium carrier gas which occurred on 5/27/89 and was discussed in the Case Narrative. No further action is necessary.

9) The blank identified as ALS#1-BLK was run on 5/26/89; however, it does correspond to samples run on 5/27/89 since the blank and samples were extracted/prepared on the same date. Therefore, the methods are followed and no action is necessary.

10) Samples TB052289002 and TB052289002 reprep appear as TB052789002 on the 612 Analytical Data Package cover sheet. The correct sample number is verified on the chain-of-custody. No action is taken.

Note: Data Summary Table attached.

Anthony W. Toth — 10-25-90

Reviewer Signature — Date

905L442v/voa

TABLE #: 8905L442 (partial)

SITE NAME: Solar Ponds

CLP VOLATILE ORGANIC ANALYSIS: Low Water

ANALYTICAL RESULTS (ppb)

Sample Number		ALS-#1 BLK	TB051989A	SW094002FB	ALS-#1 BLK	SW095002	SW094002	SW094002D	TB052289002		
Sampling Date			05/19/89	05/22/89		05/22/89	05/22/89	05/22/89	05/22/89		
Analysis Date		05/26/89	05/27/89	05/27/89	05/30/89	05/30/89	05/30/89	05/30/89	05/30/89		
Remarks		Method Blank	Trip Blank	Field Blank	Method Blank	Reprep	Reprep	Duplicate/Reprep	Trip Blank/Reprep		
Volatile Compound	CRQL ug/L (ppb)	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ		
Chloromethane			2 UJ A	2 UJ A		2 UJ A	2 UJ A	2 UJ A	2 UJ A		
Bromomethane			2 UJ A	2 UJ A		2 UJ A	2 UJ A	2 UJ A	2 UJ A		
Vinyl chloride			2 UJ A	2 UJ A		2 UJ A	2 UJ A	2 UJ A	2 UJ A		
Chloroethane			2 UJ A	2 UJ A		2 UJ A	2 UJ A	2 UJ A	2 UJ A		
Methylene chloride		7.3 ppb	4 UJ A	4 UJ A		4 UJ A	4 UJ A	4 UJ A	4 UJ A		
Acetone											
Carbon disulfide											
1,1-Dichloroethene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
1,1-Dichloroethane			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
1,2-Dichloroethene (Total)			1 U V	1 U V		1 U V	1 U V	1 U V	1 U V		
Chloroform			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
1,2-Dichloroethane		1.6 ppb	1 U V	1 U V		1 U V	1 U V	1 U V	1 U V		
2-Butanone											
1,1,1-Trichloroethane			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Carbon tetrachloride			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Vinyl acetate											
Bromodichloromethane			2 U V	2 U V		2 U V	2 U V	2 U V	2 U V		
1,2-Dichloropropane			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
cis-1,3-Dichloropropene			1 U V	1 U V		1 U V	1 U V	1 U V	1 U V		
Trichloroethene			1 UJ A	1 UJ A		2.2 J A	3.7 J A	3 J A	1 UJ A		
Dibromochloromethane			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
1,1,2-Trichloroethane			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Benzene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
trans-1,3-Dichloropropene			1 U V	1 U V		1 U V	1 U V	1 U V	1 U V		
Bromoform			10 U V	10 U V		10 U V	10 U V	10 U V	10 U V		
4-Methyl-2-pentanone											
2-Hexanone											
Tetrachloroethene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
1,1,2,2-Tetrachloroethane			1 U V	1 U V		1 U V	1 U V	1 U V	1 U V		
Toluene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Chlorobenzene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Ethylbenzene			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Styrene											
Xylenes (Total)			1 UJ A	1 UJ A		1 UJ A	1 UJ A	1 UJ A	1 UJ A		
Total Organic Concentration (ppb)		8.9	0	0	0	2.2	3.7	3	0		

U Indicates the compound was not detected above the Required Quantitation Limit.

J Quantitation is approximate due to limitations identified during the quality control review.

E Exceeds calibration range, dilute & reanalyze.

CRQL Contract Required Quantitation Limit in Micrograms per Liter (ug/L), Parts per billion (ppb).

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

905L442v/tmp3

EG&G ER Department
Rocky Flats Plant

(06/15/90)

ER DEPARTMENT DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8905L442 **Site** Solar Ponds

Laboratory Roy F. Weston - Lionville **No. of Samples/Matrix** 4/Water

SOW # 10/86 (Rev. 2/88) **Reviewer Org.** TechLaw, Inc.

Sample Numbers SW095002, SW094002, SW094002D, SW094002FB

Data Assessment Summary

		BNA	Comments
1.	**Holding Times**	V	
2.	**GC/MS Tune/Instr. Perf.**	V	
3.	**Calibrations**	A	Action Items 1 & 2; Comments 1 & 2
4.	**Blanks**	A	Action Item 3
5.	**Surrogates**	V	
6.	**Matrix Spike/Dup.**	X	Comment 3
7.	**Other QC**	V	
8.	**Internal Standards**	V	
9.	**Compound Identification**	X	Comment 4
10.	**System Performance**	V	
11.	**Overall Assessment**	A	Data acceptable with qualifications

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Data Summary Tables.)

Action Items: 1) In the initial calibration of 6/6/89, the %RSD for 3,3'-Dichlorobenzidine exceeded 50% and in the continuing calibration of 6/7/89, the %D exceeded 50% and the RRF was less than 0.05 for this compound. Therefore, non-detected results for 3,3'-Dichlorobenzidine in all samples are rejected (R).

2) In the continuing calibration of 6/8/89, the %D for Hexachlorocyclopentadiene exceeded 50%. Therefore, the non-detected result for this compound in sample SW094002FB is rejected (R).

3) The method blank was analyzed eight days after the samples on a different instrument. Since system contamination is unverifiable in this circumstance, the positive results for Di-n-butyl phthalate and Bis(2-ethylhexyl)phthalate in samples SW095002 and SW094002FB are estimated (J).

Comments: 1) The calibrations had compounds whose %RSD or %D exceeded criteria. No action is required because there were no positive results for these compounds.

2) The surrogate 2-fluorophenol had a %D exceeding 25% in the continuing calibration of 6/7/89. No action is warranted.

3) Two percent spike recoveries exceeded criteria in the MS/MSD. No action is taken because results are not qualified solely on MS/MSD data.

4) A TIC, Atrazine, was reported in all samples except SW094002FB.

Note: Data Summary Tables are attached.

William T Fee — 6/21/90

Reviewer Signature — Date

5LA22/bna

TABLE #: 8905L442

SITE NAME: Solar Ponds

CLP SEMIVOLATILE ANALYSIS: Low Water

ANALYTICAL RESULTS (ug/L)

Sample Location										
Sample Number		SBLK	SW095002	SW094002	SW094002D	SW094002FB				
Sampling Date			5/22/89	5/22/89	5/22/89	5/22/89				
Remarks		Method Blank			Field Duplicate	Field Blank				
Semivolatiles (BNA) Organic Compound	CRQL ug/L	DQ	DQ	DQ	DQ	DQ				
Phenol	10		10 U V	10 U V	10 U V	10 U V				
Bis(2 - Chloroethyl)ether	10		10 U V	10 U V	10 U V	10 U V				
2 - Chlorophenol	10		10 U V	10 U V	10 U V	10 U V				
1,3 - Dichlorobenzene	10		10 U V	10 U V	10 U V	10 U V				
1,4 - Dichlorobenzene	10		10 U V	10 U V	10 U V	10 U V				
Benzyl alcohol	10		10 U V	10 U V	10 U V	10 U V				
1,2 - Dichlorobenzene	10		10 U V	10 U V	10 U V	10 U V				
2 - Methylphenol	10		10 U V	10 U V	10 U V	10 U V				
Bis(2-chloroisopropyl)ether	10		10 U V	10 U V	10 U V	10 U V				
4 - Methylphenol	10		10 U V	10 U V	10 U V	10 U V				
N-Nitroso-di-n-propylamine	10		10 U V	10 U V	10 U V	10 U V				
Hexachloroethane	10		10 U V	10 U V	10 U V	10 U V				
Nitrobenzene	10		10 U V	10 U V	10 U V	10 U V				
Isophorone	10		10 U V	10 U V	10 U V	10 U V				
2 - Nitrophenol	10		10 U V	10 U V	10 U V	10 U V				
2,4 - Dimethylphenol	10		10 U V	10 U V	10 U V	10 U V				
Benzoic Acid	50		50 U V	50 U V	50 U V	50 U V				
Bis(2-Chloroethoxy)methane	10		10 U V	10 U V	10 U V	10 U V				
2,4 - Dichlorophenol	10		10 U V	10 U V	10 U V	10 U V				
1,2,4 - Trichlorobenzene	10		10 U V	10 U V	10 U V	10 U V				
Naphthalene	10		10 U V	10 U V	10 U V	10 U V				
4 - Chloroaniline	10		10 U V	10 U V	10 U V	10 U V				
Hexachlorobutadiene	10		10 U V	10 U V	10 U V	10 U V				
4-Chloro-3-methylphenol	10		10 U V	10 U V	10 U V	10 U V				
2-Methylnaphthalene	10		10 U V	10 U V	10 U V	10 U V				
Hexachlorocyclopentadiene	10		10 U V	10 U V	10 U V	10 U R				
2,4,6-Trichlorophenol	10		10 U V	10 U V	10 U V	10 U V				
2,4,5-Trichlorophenol	50		50 U V	50 U V	50 U V	50 U V				
2-Chloronaphthalene	10		10 U V	10 U V	10 U V	10 U V				
2-Nitroaniline	50		50 U V	50 U V	50 U V	50 U V				
Dimethyl phthalate	10		10 U V	10 U V	10 U V	10 U V				
Acenaphthylene	10		10 U V	10 U V	10 U V	10 U V				
2,6-Dinitrotoluene	10		10 U V	10 U V	10 U V	10 U V				
3-Nitroaniline	50		50 U V	50 U V	50 U V	50 U V				

E Exceeds calibration range.

U Indicates the compound was not detected above the Instrument Quantitation Limit.

J Quantitation is approximate due to limitations identified during the quality control review.

CRQL Contract Required Quantitation Limit in Micrograms per Liter (ug/L), Parts per Billion (ppb).

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

TABLE #: 8905L442

SITE NAME: Solar Ponds

CLP SEMIVOLATILE ANALYSIS: Low Water

ANALYTICAL RESULTS (ug/L)

Sample Location										
Sample Number		SBLK	SW095002	SW094002	SW094002D	SW094002FB				
Sampling Date			5/22/89	5/22/89	5/22/89	5/22/89				
Remarks		Method Blank			Field Duplicate	Field Blank				
Semivolatiles (BNA) Organic Compound	CRQL ug/L	DQ	DQ	DQ	DQ	DQ				
Acenaphthene	10		10 U V	10 U V	10 U V	10 U V				
2,4-Dinitrophenol	50		50 U V	50 U V	50 U V	50 U V				
4-Nitrophenol	50		50 U V	50 U V	50 U V	50 U V				
Dibenzofuran	10		10 U V	10 U V	10 U V	10 U V				
2,4-Dinitrotoluene	10		10 U V	10 U V	10 U V	10 U V				
Diethyl phthalate	10		10 U V	10 U V	10 U V	10 U V				
4-Chlorophenyl-phenyl ether	10		10 U V	10 U V	10 U V	10 U V				
Fluorene	10		10 U V	10 U V	10 U V	10 U V				
4-Nitroaniline	50		50 U V	50 U V	50 U V	50 U V				
4,6-Dinitro-2-methylphenol	50		50 U V	50 U V	50 U V	50 U V				
N-Nitrosodiphenylamine	10		10 U V	10 U V	10 U V	10 U V				
4-Bromophenyl phenyl ether	10		10 U V	10 U V	10 U V	10 U V				
Hexachlorobenzene	10		10 U V	10 U V	10 U V	10 U V				
Pentachlorophenol	50		50 U V	50 U V	50 U V	50 U V				
Phenanthrene	10		10 U V	10 U V	10 U V	10 U V				
Anthracene	10		10 U V	10 U V	10 U V	10 U V				
Di-n-butyl phthalate	10		1 J A	10 U V	10 U V	62 J A				
Fluoranthene	10		10 U V	10 U V	10 U V	10 U V				
Pyrene	10		10 U V	10 U V	10 U V	10 U V				
Butylbenzyl phthalate	10		10 U V	10 U V	10 U V	10 U V				
3,3'-Dichlorobenzidine	20		20 U R	20 U R	20 U R	20 U R				
Benzo(a)anthracene	10		10 U V	10 U V	10 U V	10 U V				
Chrysene	10		10 U V	10 U V	10 U V	10 U V				
Bis(2-ethylhexyl)phthalate	10		1 J A	10 U V	10 U V	14 J A				
Di-n-octyl phthalate	10		10 U V	10 U V	10 U V	10 U V				
Benzo(b)fluoranthene	10		10 U V	10 U V	10 U V	10 U V				
Benzo(k)fluoranthene	10		10 U V	10 U V	10 U V	10 U V				
Benzo(a)pyrene	10		10 U V	10 U V	10 U V	10 U V				
Indeno(1,2,3-cde)pyrene	10		10 U V	10 U V	10 U V	10 U V				
Dibenz(a,h)anthracene	10		10 U V	10 U V	10 U V	10 U V				
Benzo(g,h,i)perylene	10		10 U V	10 U V	10 U V	10 U V				
Total semivolatile BNA concentration (ppb)		0	2	0	0	76				

E Exceeds calibration range.

U Indicates the compound was not detected above the Instrument Quantitation Limit.

J Quantitation is approximate due to limitations identified during the quality control review.

CRQL Contract Required Quantitation Limit in Micrograms per Liter (ug/L), Parts per Billion (ppb).

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

5L442.WK1

EG&G ER Department
Rocky Flats Plant

(06/27/90)

ER DEPARTMENT DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8905L442 **Site** Solar Ponds

Laboratory Roy F. Weston - Lionville **No. of Samples/Matrix** 4/Water

SOW # 10/86 (Rev. 2/88) **Reviewer Org.** TechLaw, Inc.

Sample Numbers SW095002, SW094002, SW094002D, SW094002FB

Data Assessment Summary

		Pesticides/PCB	Comments
1.	Holding Times	V	
2.	Instrument Performance	X	Comment 1
3.	Calibrations	X	Comment 2
4.	Blanks	V	
5.	Surrogates	V	
6.	Matrix Spike/Dup.	X	Comment 3
7.	Other QC	X	Comments 4,5,6
8.	Compound Identification	V	
9.	System Performance	V	
10.	Overall Assessment	V	Data is valid.

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be valid. (Refer to attached Data Summary Table.)

Comments: 1) In the continuing calibrations of 6/9/89 (0051) and 6/9/89 (0059) on the primary and confirmation columns respectively, several compounds were not within the retention time windows. Expanded windows were used in evaluating these compounds and no positive results were found. No action is necessary.

2) In the continuing calibrations of 6/8/89 (0934) and 6/9/89 (0018) on the primary column, Endrin's and Aldrin's %Ds exceeded 15%. In the continuing calibration of 6/9/89 (0026) on the confirmation column, alpha-BHC's and delta-BHC's %Ds exceeded 20%. No action is necessary because there were no positive results for these compounds.

3) Two compounds' Percent Recoveries failed to meet the criteria in both the matrix spike and matrix spike duplicate (there was no recovery of gamma-BHC at all). No action is necessary because results are not qualified due to MS/MSD alone.

4) The CRQLs were not adjusted to account for the extraction volume of 990 milliliters. The CRQLs were recalculated and the changed values are reported on the Data Summary Table.

5) The multiresponse compounds (Aroclors and Toxaphene) were not included on the Form 9s. No action is necessary; however, these compounds should have been listed.

6) The quantitation report was missing for the continuing calibration of 6/9/89 (0059) on the confirmation column. A Form 9 was included for this standard and is assumed to be correct.

Note: Data Summary Tables are attached.

Jill Haschler — 7-9-90

Reviewer Signature — Date

5L442/pcb

TABLE #: 8905L442

SITE NAME: Solar Ponds

CLP PESTICIDES/PCB ANALYSIS: Low Water

ANALYTICAL RESULTS (ug/L)

Sample Location										
Sample Number		PBLK456	SW095002	SW094002	SW094002D	SW094002FB				
Sample Date			5/22/89	5/22/89	5/22/89	5/22/89				
Remarks		Method Blank	x5 Dilution	x5 Dilution	Duplicate	Field Blank				
Chlorinated Pesticides	CRQL				x5 Dilution					
Analyte	ug/L	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ
alpha - BHC	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
beta - BHC	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
delta - BHC	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
gamma - BHC (Lindane)	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
Heptachlor	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
Aldrin	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
Heptachlor epoxide	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
Endosulfan I	0.050		0.25 U V	0.25 U V	0.25 U V	0.051 U V				
Dieldrin	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
4,4' - DDE	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
Endrin	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
Endosulfan II	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
4,4' - DDD	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
Endosulfan sulfate	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
4,4' - DDT	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
Methoxychlor	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Endrin Ketone	0.10		0.51 U V	0.51 U V	0.51 U V	0.10 U V				
alpha - Chlordane	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
gamma - Chlordane	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Toxaphene	1.0		5.1 U V	5.1 U V	5.1 U V	1.0 U V				
Aroclor - 1016	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Aroclor - 1221	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Aroclor - 1232	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Aroclor - 1242	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Aroclor - 1248	0.50		2.5 U V	2.5 U V	2.5 U V	0.51 U V				
Aroclor - 1254	1.0		5.1 U V	5.1 U V	5.1 U V	1.0 U V				
Aroclor - 1260	1.0		5.1 U V	5.1 U V	5.1 U V	1.0 U V				
Total Chlorinated Pesticides (ppb)		0	0	0	0	0	0	0	0	0

E Exceeds calibration range.

U Indicates the compound was not detected above the Instrument Quantitation Limit

J Quantitation is approximate due to limitations identified during the quality control review

CRQL Contract Required Detection Limit in Micrograms per Liter (ug/L), Parts per Billion (ppb)

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

5L442/pcb

~~Stockton~~ George, 256, Mitolaken, Payne, Dawn Green JEM 89-0010

Custody Transfer Record/Lab Work Request

WESTON

WESTON Analytics Use Only
8905L442

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. 5.24.89 Date Due 6.21.89
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#	✓	✓	✓	MQ		ALL			
#/Type Container	2/G	1/G	2/G		1	40ml	WHITE		
Volume	462	160g	40ml		IN	PAIDE	#1		
Preservative	NA	NA	NA						
ANALYSES REQUESTED	VOA	6							

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected									
001	SEP3089BR0002	S	5-19-89	X								
002	SEP3089BR0406	S		X								
003	SEP3089BR0810	S		X								
004	SEP3089BR1214	S		X								
005	SEP3089BR1618	S		X								
006	SEP3089BR2022	S		X								
007	SEP3089BR2026 JEM	S		X								
008	TB051989A	W				X						
009	SEP3089BR0003	S			X							
010	SEP3089BR0309	S			X							
011	SEP3089BR0915	S			X							
012	SEP3089BR1521	S			X							
013	SEP3089BR2127	S			X							

REVISION 6/26/89
SOIL VOAS = 0624 MQ
PER M.C.

VOAS = 0610
DEDICATED
LAB 1375

Matrix:
S - Soil, SE - Sediment, SO - Solid, W - Water, O - Oil, A - Air, WI - Wipe, DS - Drum Solids, DL - Drum Liquids, F - Fish, L - EP/TCLP Leachate, X - Other

Special Instructions: 1 = vos 2 = bna 3 = pest/pcb 4 = cyanide
5 = filtered tcl metals, Mo, Sr, Cs, Li, Sn
6 = unfiltered tcl metals, Mo, Sr, Cs, Li, Sn
Full CLP

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	F. McDonald	5-22-89	18:00	% Solids	[illegible]	[illegible]	5-25	8:15
	F. McDonald	Fed Ex	5-23-89	17:00	Storage	[illegible]	[illegible]	5-25	11:00
	Fed Ex	M. Hoffman	5-24-89	19:30	Metals	[illegible]	[illegible]	5-26	9:00
VOA analysis	[illegible]	[illegible]	6-2-89	11:00pm		[illegible]		6-2-89	12:00
VOA Storage	[illegible]		6/13	911					

Samples Were:
1 Shipped or Hand-Delivered
NOTES:
2 Ambient or Chilled
NOTES:
3 Received Broken/Leaking (Improperly Sealed) Y N
NOTES:
4 Properly Preserved Y N
NOTES:
5 Received Within Holding Times Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

RFW 21-21-001/A-12/88

RADIOACTIVE

7-115

Lionville

~~Stockton~~

WWB0522 89001

WESTON Analytics Use Only
8905L442

Custody Transfer Record/Lab Work Request

WESTON

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. 5-24-89 Date Due 6-21-89
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#	✓	✓	✓	✓	✓	✓	M		
#/Type Container	2/Glass	1/Glass	1/Glass	1/Plastic	1/Plastic	1/Plastic			
Volume	40ml	1-L	1-L	1-L	1-L	1-L			
Preservative	none	none	none	NaOH	HNO3	HNO3			
ANALYSES REQUESTED	VOA 1	BNA 2	P/PCB 3	CN⁻ 4	METALS 5	6			
Matrix									
Date Collected									

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	1	2	3	4	5	6			
014	TB0522S9002	W	5/22/89	X	X							
6m	~~SW0064002~~	W		X	X	X	X	X	X			
015	SW095002	W		X	X	X	X	X	X			
016	SW094002 MS/MSD	W		X	X	X	X	X	X			
017	SW094002D	W		X	X	X	X	X	X			
018	SW094002 FB	W		X	X	X	X	X	X			
	~~SW094002 MS/MSD~~	W		X	X	X	X	X	X	REPRESENTED ABOVE		
019	SW095002							X				
020	SW094002 MS/MSD							X				
021	SW094002D							X				
022	SW094002 FB							X				
	RADIOACTIVE			VOA = OL012								
				DEDICATED LAB 1375								

Matrix: W - Water, DS - Drum Solids, X - Other, S - Soil, O - Oil, DL - Drum Liquids, SE - Sediment, A - Air, F - Fish, SO - Solid, WI - Wipe, L - EP/TCLP Leachate

Special Instructions: 1 = vos 2 = bna 3 = pest/pcb 4 = cyanide
SOL 5 = filtered tcl metals, Mo, Sr, Cs, Li, Sn
TOT 6 = unfiltered tcl metals, Mo, Sr, Cs, Li, Sn

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	F. MacDonald	5-23-89	13:00					
CN	[illegible]	[illegible]	5-25	8:00					
Image	[illegible]	[illegible]	5/25	2:30					

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed) Y N
NOTES:

4 Properly Preserved Y N
NOTES:

5 Received Within Holding Times Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N MQ
4 Unbroken on Sample Y N MQ
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

RFW 21-21-001/A-12/88

SW094002 - less than 100pCi/l
SW095002 - less than 200pCi/l

SW064002 transferred to COC FAM052389001

7-115

EG&G ER Program
Rocky Flats Plant

(03/06/90)

ER PROGRAM DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8905L442 **Site** Site Background Characterization

Laboratory Roy F. Weston **No. of Samples/Matrix** 5/Soil, 8/Water

SOW # 7/87 **Reviewer Org.** TechLaw, Inc.

Sample Numbers SEP3089BR0003, SEP3089BR0309, SEP3089BR0915, SEP3089BR1521, SEP3089BR2127, SW095002 (total), SW094002 (total), SW094002D (total), SW094002FB (total), SW095002 (soluble), SW094002 (soluble), SW094002D (soluble), SW094002FB (soluble)

Data Assessment Summary

		ICP	AA	Hg	CN	Comments
1.	Holding Times	V	V	V	V	
2.	Calibrations	A	V	V	V	Action Item 1
3.	Blanks	A	A	V	V	Action Items 2-9
4.	ICP Interference Check Sample	V	N/A	N/A	N/A	
5.	Lab Control Sample Results	V	V	V	V	
6.	Duplicate Sample Results	A	V	V	V	Action Items 10-11
7.	Matrix Spike Sample Results	A	A	V	V	Action Item 12-18
8.	Method of Standard Addition	N/A	A	N/A	N/A	Action Item 19
9.	Serial Dilution	A	N/A	N/A	N/A	Action Item 20-23
10.	Sample Verification	V	V	V	V	
11.	Other QC	V	V	V	V	
12.	Overall Assessment	A	A	V	V	Data valid, or acceptable with qualifications

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

N/A = Not applicable.

Data Quality: Data contained in this batch were reviewed and found to be valid, or acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Results Summary Tables).

Action Items: 1) All Vanadium aqueous values are estimated (J) because the CRDL check sample recovery was outside control limits.

2) The Beryllium and Copper non-detects for SW094002FB (total and soluble) are rejected (R) because of negative bias indicated in the blanks.

3) The Beryllium and Copper values for SW095002 (total and soluble), SW094002 (total and soluble), and SW094002D (total and soluble) are estimated (J) because of negative bias indicated in the blanks.

4) The Zinc value for SW094002FB (total) is estimated and undetected (UJ) because Zinc values >IDL were found in the blanks.

5) The Sodium and Potassium values for SW094002FB (total and soluble) are estimated and undetected (UJ) because analyte values >IDL were found in the blanks.

6) The Potassium values for SEP3089BR0915, SEP3089BR1521, and SEP3089BR2127 are estimated and undetected (UJ) because Potassium values >IDL were found in the blanks.

7) The Copper value for SEP3089BR0915 is estimated and undetected (UJ) because Copper values >IDL were found in the blanks.

8) All Selenium soil values are estimated and undetected (UJ) because Selenium values >IDL were found in the blanks.

9) The Selenium values for SW094002 (soluble) and SW094002FB (soluble) are estimated and undetected (UJ) because Selenium values >IDL were found in the blanks.

10) All Calcium soil values are estimated (J) because the duplicate precision criteria were not met.

11) The Potassium values for SEP3089BR0003 and SEP3089BR0309 are estimated (J) because the duplicate precision criteria were not met.

12) The Arsenic non-detects for SW094002FB (total) and SW095002 (soluble) are estimated and undetected (UJ) because the post-digestion matrix spike recoveries were outside control limits.

13) All Lead soil values are estimated (J) and all Lead aqueous non-detects are estimated and undetected (UJ) because the pre-digestion matrix spike recoveries were outside control limits.

Action Items: (cont) 14) The Selenium values for SW095002 (total and soluble), SW094002 (total), SW094002D (total and soluble), and SW094002FB (total) are estimated (J) because the pre-digestion matrix spike recoveries were outsidecontrol limits.

15) The Thallium non-detects for SEP3089BR0003, SW095002 (total and soluble), SW094002 (soluble), and SW094002FB (soluble) are estimated and undetected (UJ) because the post-digestion matrix spike recoveries were outside control limits.

16) All Manganese soil values are estimated (J) because the matrix spike recovery was outside control limits.

17) The Silver value for SEP3089BR0003 is estimated (J) because the matrix spike recovery was outside control limits.

18) The Cadmium values for SEP3089BR0003, SEP3089BR0309, and SEP3089BR1521 are estimated (J) because the matrix spike recovery was outside control limits.

19) The Arsenic value for SEP3089BR0309 is estimated (J) because the MSA correlation coefficient was outside control limits.

20) The Potassium, and Sodium values for SW095002 (total and soluble), SW094002 (total and soluble), and SW094002D (total and soluble) are estimated (J) because the ICP serial dilution criteria were not met.

21) All aqueous Magnesium values are estimated (J) because the ICP serial dilution criteria were not met.

22) All Zinc soil values are estimated (J) because the ICP serial dilution criteria were not met.

23) The Zinc values for SW095002 (total and soluble), SW094002 (total and soluble), SW094002D (total and soluble), and SW094002FB (soluble) are estimated (J) because the ICP serial dilution criteria were not met.

Comments: None

Note: Data Summary Tables are attached.

Richard Kastl
Reviewer Signature

3/14/90
Date

L442/rk24j

TABLE #: 8905L442

SITE NAME: Site Background Characterization

CLP SEDIMENT INORGANIC ANALYSIS: Low Soil

ANALYTICAL RESULTS (mg/Kg)

Sample Location																								
Sample Number			SEP3089BR0003		SEP3089BR0309		SEP3089BR0915		SEP3089BR1521		SEP3089BR2127													
Sample Date			05/19/89		05/19/89		05/19/89		05/19/89		05/19/89													
Percent Solids			80.0%		91.3%		89.8%		79.6%		85.0%													
Inorganic Analyte		DL mg/Kg		DQ		DQ		DQ		DQ		DQ												
Aluminum	Al	40	21100	V	23000	V	6390	V	10700	V	9630	V												
Antimony	Sb	12	12.5 U	V	11.0 U	V	9.3 U	V	11.4 U	V	10.7 U	V												
Arsenic	As	2	4.3	V	2.8 J	A	1.0	V	2.8	V	3.8	V												
Barium	Ba	40	228	V	82.0	V	28.6	V	203	V	169	V												
Beryllium	Be	1.0	1.5	V	1.7	V	0.39	V	1.1	V	1.2	V												
Cadmium	Cd	1.0	4.8 J	A	0.53 J	A	0.41 U	V	0.55 J	A	0.47 U	V												
Calcium	Ca	2000	28700 J	A	2320 J	A	1260 J	A	5220 J	A	7920 J	A												
Cesium	Cs	200	250 U	V	219 U	V	186 U	V	228 U	V	214 U	V												
Chromium	Cr	2.0	23.5	V	19.4	V	7.6	V	27.1	V	11.6	V												
Cobalt	Co	10	8.8	V	3.6	V	1.8	V	8.2	V	6.8	V												
Copper	Cu	5.0	19.9	V	10.3	V	3.9 UJ	A	18.2	V	24.3	V												
Iron	Fe	20	18100	V	16000	V	4720	V	21200	V	21200	V												
Lead	Pb	1.0	16.4 J	A	7.4 J	A	2.6 J	A	14.0 J	A	13.5 J	A												
Lithium	Li	20	25.0 U	V	21.9 U	V	18.6 U	V	22.8 U	V	21.4 U	V												
Magnesium	Mg	2000	3630	V	3010	V	1000	V	2370	V	2080	V												
Manganese	Mn	3.0	231 J	A	70.7 J	A	33.1 J	A	533 J	A	382 J	A												
Mercury	Hg	0.3	0.12 U	V	0.11 U	V	0.11 U	V	0.13 U	V	0.12 U	V												
Molybdenum	Mo	40	25.0 U	V	21.9 U	V	18.6 U	V	22.8 U	V	21.4 U	V												
Nickel	Ni	8.0	19.7	V	17.6	V	4.8	V	21.9	V	21.7	V												
Potassium	K	2000	4580 J	A	4620 J	A	1160 UJ	A	1390 UJ	A	1770 UJ	A												
Selenium	Se	1.0	1.8 UJ	A	1.3 UJ	A	0.69 UJ	A	0.77 UJ	A	0.87 UJ	A												
Silver	Ag	2.0	5.2 J	A	1.5 U	V	1.2 U	V	1.5 U	V	1.4 U	V												
Sodium	Na	2000	2410	V	3450	V	234	V	587	V	758	V												
Strontium	Sr	40	79.8	V	22.5	V	18.6 U	V	47.2	V	47.3	V												
Thallium	Tl	2.0	0.38 UJ	A	0.33 U	V	0.28 U	V	0.31 U	V	0.35 U	V												
Tin	Sn	40	44.0	V	44.0	V	18.6 U	V	32.8	V	34.2	V												
Vanadium	V	10	48.8	V	20.5	V	8.0	V	31.2	V	58.4	V												
Zinc	Zn	4.0	63.0 J	A	26.9 J	A	12.8 J	A	82.6 J	A	60.7 J	A												
Cyanide		10	N/R		N/R		N/R		N/R		N/R													

E Estimated by the Laboratory
U Indicates the compound was not detected above the Instrument Quantitation Limit
J Quantitation is approximate due to limitations identified during the quality control review
DL Detection Limit in Milligrams per Kilogram (mg/Kg)
N/R Not reported

DQ Data Qualifier
V Valid
A Acceptable with qualifications
R Rejected

L442L/rk34j

TABLE #: 8905L442

SITE NAME: Site Background Characterization

CLP WATER INORGANIC ANALYSIS: Low Water

ANALYTICAL RESULTS (ug/L)

Sample Location																				
Sample Number			SW095002		SW095002		SW094002		SW094002		SW094002D		SW094002D		SW094002FB		SW094002FB			
Sample Date			05/22/89		05/22/89		05/22/89		05/22/89		05/22/89		05/22/89		05/22/89		05/22/89			
Remarks			Total		Soluble		Total		Soluble		Total		Soluble		Total		Soluble			
Inorganic Analyte		DL ug/L		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		
Aluminum	Al	200	208	V	193	V	208	V	194	V	280	V	187	V	30.4 U	V	30.4 U	V		
Antimony	Sb	60	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V		
Arsenic	As	10	1.3 U	V	1.3 UJ	A	3.8	V	1.3 U	V	1.3 U	V	1.3 U	V	1.3 UJ	A	1.3 U	V		
Barium	Ba	200	160	V	158	V	159	V	159	V	164	V	160	V	5.8 U	V	5.8 U	V		
Beryllium	Be	5	0.68 J	A	0.7 J	A	0.7 J	A	0.7 J	A	0.7 J	A	0.7 J	A	0.2 U	R	0.2 U	R		
Cadmium	Cd	5	2.2 U	V	2.2 U	V	2.2 U	V	2.2 U	V	2.2 U	V	2.2 U	V	2.2 U	V	2.2 U	V		
Calcium	Ca	5000	366000	V	365000	V	365000	V	367000	V	367000	V	368000	V	39.8	V	1190	V		
Cesium	Cs	1000	1000 U	V	1000 U	V	1000 U	V	1000 U	V	1000 U	V	1000 U	V	1000 U	V	1000 U	V		
Chromium	Cr	10	2.6 U	V	2.6 U	V	2.6 U	V	2.6 U	V	2.6 U	V	2.6 U	V	2.6 U	V	4.4	V		
Cobalt	Co	50	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V		
Copper	Cu	25	10.0 J	A	12.9 J	A	11.8 J	A	8.9 J	A	14.0 J	A	8.5 J	A	1.8 U	R	1.8 U	R		
Iron	Fe	100	114	V	77.7	V	89.0	V	79.6	V	207	V	76.4	V	39.0	V	77.7	V		
Lead	Pb	5	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A	1.5 UJ	A		
Lithium	Li	100	445	V	449	V	453	V	445	V	458	V	452	V	100 U	V	100 U	V		
Magnesium	Mg	5000	96000 J	A	96000 J	A	96000 J	A	95600 J	A	98100 J	A	96300 J	A	327 J	A	87.1 J	A		
Manganese	Mn	15	20.2	V	18.9	V	20.2	V	19.8	V	24.7	V	18.9	V	1.3	V	6.7	V		
Mercury	Hg	0.2	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V	0.2 U	V		
Molybdenum	Mo	200	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V		
Nickel	Ni	40	10.8	V	8.2	V	6.5 U	V	86.1	V	308	V	12.8	V	6.5	V	843	V		
Potassium	K	5000	76900 J	A	76500 J	A	77800 J	A	75000 J	A	71600 J	A	76700 J	A	665 UJ	A	665 UJ	A		
Selenium	Se	5	10.5 J	A	10.6 J	A	19.8 J	A	7.0 UJ	A	12.0 J	A	11.2 J	A	1.8 J	A	3.4 UJ	A		
Silver	Ag	10	6.7 U	V	6.7 U	V	6.7 U	V	6.7 U	V	6.7 U	V	6.7 U	V	6.7 U	V	6.7 U	V		
Sodium	Na	5000	403000 J	A	424000 J	A	418000 J	A	418000 J	A	433000 J	A	421000 J	A	337 UJ	A	1220 UJ	A		
Strontium	Sr	200	2710	V	2690	V	2900	V	2700	V	2770	V	2700	V	100 U	V	100 U	V		
Thallium	Tl	10	1.5 UJ	A	1.5 UJ	A	1.5 U	V	1.5 UJ	A	1.5 U	V	1.5 UJ	A	1.5 U	V	1.5 U	V		
Tin	Sn	200	132	V	148	V	100 U	V	129	V	142	V	124	V	100 U	V	100 U	V		
Vanadium	V	50	2.1 U	V	3.0 J	A	3.3 J	A	3.0 J	A	3.6 J	A	2.1 U	V	3.6 J	A	2.1 U	V		
Zinc	Zn	20	39.6 J	A	47.5 J	A	42.1 J	A	168 J	A	373 J	A	29.7 J	A	9.9 UJ	A	656 J	A		
Cyanide		10	10.0 U	V	N/R		10.0 U	V	N/R		10.0 U	V	N/R		10.0 U	V	N/R			

E Estimated by the Laboratory
U Indicates the compound was not detected above the Instrument Quantitation Limit
J Quantitation is approximate due to limitations identified during the quality control review
DL Detection Limit in Micrograms per Liter (ug/L)
N/R Not reported

DQ Data Qualifier
V Valid
A Acceptable with qualifications
R Rejected

L442L/rk24j

Lionville

~~Stockton~~

WWB0522 8900,

WESTON Analytics Use Only
89054442

Custody Transfer Record/Lab Work Request

WESTON

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. 5-24-89 Date Due 6-21-89
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#	✓	✓	✓	✓	✓	✓	NA		
#/Type Container	2 Plastic	1 Plastic	1 Plastic	1 Plastic	1 Plastic	1 Plastic			
Volume	40ml	1-L	1-L	1-L	1-L	1-L			
Preservative	none	none	none	NaOH	HNO3	HNO3			
ANALYSES REQUESTED	VOA	BNA	PPCB	CN-	METALS				
	1	2	3	4	5	6			

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	VOA	BNA	PPCB	CN-	METALS					
014	TB0522 89002	W	5/22/89	X	X								
6m	~~SW0064002~~	W		X	X	X	X	X	X				
015	SW095002	W		X	X	X	X	X	X				
016	SW094002 MS/MSD	W		X	X	X	X	X	X				
017	SW094002D	W		X	X	X	X	X	X				
018	SW094002 FB	W		X	X	X	X	X	X				
	~~SW094002 MS/MSD~~	W		X	X	X	X	X	X	REPRESENTED ABOVE			
019	SW095002							X					
020	SW094002 MS/MSD							X					
021	SW094002D							X					
022	SW094002 FB							X					
	RADIOACTIVE			VOA = 0012									
				DEDICATED LAB 1375									

Matrix:
S - Soil, SE - Sediment, SO - Solid, W - Water, O - Oil, A - Air, WI - Wipe, DS - Drum Solids, DL - Drum Liquids, F - Fish, L - EP/TCLP Leachate, X - Other

Special Instructions: 1 = vos 2 = bna 3 = pest/pcb 4 = cyanide
Sol 5 = filtered tcl metals, Mo, Sr, Cs, Li, Sn
TOT 6 = unfiltered tcl metals, Mo, Sr, Cs, Li, Sn

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	[illegible]							
CN	[illegible]	[illegible]	5-23-89	13:00					
Image	[illegible]	[illegible]	5-25	8:00					
			5/25	2:30					

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed) Y N
NOTES:

4 Properly Preserved Y N
NOTES:

5 Received Within Holding Times Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

RFW 21-21-001/A-12/88

SW094002 - less than 100pCi/l
SW095002 - less than 200pCi/l

SW064002 transferred to COC FAM052389001

7-115

89 052442

ACCU-LABS RESEARCH, INC.
TOTAL RADIOCHEMISTRY
DATA SUMMARY REPORT

RFW Batch Number: Client: ROCKWELL (ROCKY FLATS) Page: 1

Sample Information

	not intersecting	Solar Pond	Solar Pond
RFW Batch ID:	3101-298-100	3101-299-100	3101-300-100
Customer ID:	SW064002	SW095002	SW094002
Laboratory ID:	9612-30390-5-1	9612-30390-5-2	9612-30390-5-3
Collection Date:	05/22/89	05/22/89	05/22/89

Radio Chemistry

Gross Alpha.....	21 ± 7	pci/l	6	140 ± 60	pci/l	72	120 ± 60	pci/l	72
Gross Beta.....	14 ± 3	pci/l	4	160 ± 30	pci/l	40	110 ± 30	pci/l	40
Uranium 233, 234.....	7.9 ± 0.7	pci/l	0.1	89 ± 2	pci/l	0.1	77 ± 3	pci/l	0.1
Uranium 235.....	0.4 ± 0.2	pci/l	0.1	3.0 ± 0.4	pci/l	0.1	3.0 ± 0.5	pci/l	0.1
Uranium 238.....	6.6 ± 0.7	pci/l	0.1	59 ± 2	pci/l	0.1	48 ± 2	pci/l	0.1
Strontium 89, 90.....	-0.2 ± 0.4	pci/l	0.7	0.2 ± 0.4	pci/l	0.6	0.4 ± 0.5	pci/l	0.9
Plutonium 239, 240.....	0.07 ± 0.02	pci/l	0.01	0.01 ± 0.01	pci/l	0.01	0.02 ± 0.01	pci/l	0.01
Americium 241.....	0.01 ± 0.02	pci/l	0.01	0.00 ± 0.02	pci/l	0.01	0.05 ± 0.02	pci/l	0.01
Cesium 137.....	-0.1 ± 0.5	pci/l	0.8	0.2 ± 0.5	pci/l	0.9	0.1 ± 0.5	pci/l	0.9
Tritium.....	180 ± 160	pci/l	260	2500 ± 200	pci/l	260	2700 ± 200	pci/l	260
Radium 226.....	0.8 ± 0.3	pci/l	0.2	0.6 ± 0.2	pci/l	0.3	0.9 ± 0.3	pci/l	0.3
Radium 228.....									

RFW Batch Number: Client: ROCKWELL (ROCKY FLATS)

Sample Information

	Solar Pond	Solar Pond
RFW Batch ID:	3101-301-100	3101-302-100
Customer ID:	SW094002D	SW094002FB
Laboratory ID:	9612-30390-5-4	9612-30390-5-5
Collection Date:	05/22/89	05/22/89

Radio Chemistry

Gross Alpha.....	150 ± 60	pci/l	72	0 ± 1	pci/l	2
Gross Beta.....	130 ± 30	pci/l	40	0 ± 2	pci/l	3
Uranium 233, 234.....	78 ± 2	pci/l	0.1	0.0 ± 0.1	pci/l	0.1
Uranium 235.....	3.5 ± 0.5	pci/l	0.1	0.0 ± 0.1	pci/l	0.1
Uranium 238.....	48 ± 2	pci/l	0.1	0.0 ± 0.1	pci/l	0.1
Strontium 89, 90.....	0.8 ± 0.5	pci/l	0.7	-0.4 ± 0.5	pci/l	0.9
Plutonium 239, 240.....	0.01 ± 0.01	pci/l	0.01	0.00 ± 0.01	pci/l	0.01
Americium 241.....	0.01 ± 0.02	pci/l	0.01	0.00 ± 0.02	pci/l	0.01
Cesium 137.....	-0.1 ± 0.5	pci/l	0.9	-0.1 ± 0.5	pci/l	0.8
Tritium.....	2600 ± 200	pci/l	260	60 ± 150	pci/l	260
Radium 226.....	0.7 ± 0.3	pci/l	0.3			
Radium 228.....						

For: Bud Summers
Radiochemistry Supervisor

BS/dh dh

30390-03

ACCULABS

WWB052289002

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. ____ Date Due ____
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#											
#/Type Container			3/Plastic	1/Glass							
Volume			1-Gal	400ml							
Preservative			HNO3	none							
ANALYSES REQUESTED			1-11	12							
WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected								
	SW064002	W	5/22/89	X	X						
	SW095002	W		X	X						
	SW094002	W		X	X						
	SW094002D	W		X	X						
	SW094002FB	W		X	X						

Matrix:
S - Soil
SE - Sediment
SO - Solid
W - Water
O - Oil
A - Air
WI - Wipe
DS - Drum Solids
DL - Drum Liquids
F - Fish
L - EP/TCLP Leachate
X - Other

Special Instructions:
1 = gross alpha, 2 = gross beta, 3 = U233,234, 4 = U235, 5 = U238, 6 = Pu239,240, 7 = Am241, 8 = Sr90, 9 = Cs137, 10 = Ra226, 11 = Ra228, 12 = H3
f = filtered
u = unfiltered

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	M. Bennett	J. MacDonald	5-23-89	13:00					
	J. MacDonald	[illegible]	5-23-89	17:30					

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed) Y N
NOTES:

4 Properly Preserved Y N
NOTES:

5 Received Within Holding Times Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

30390-05

RFW 21-21-001/A-12/88 Samples SW094-95 greater than 50pCi/L

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