DRAFT

PHASE III RI/FS WORK PLAN

ROCKY FLATS PLANT
881 HILLSIDE AREA
(OPERABLE UNIT NO. 1)

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM

FEBRUARY, 1990

Volume II – Appendices

ADMIN RECORD

REVIEWED FOR CLASSIFICATION/UCNI
By K. A. Dallmosa (UNM)
Date 3/3/90
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PHASE III RI/FS WORK PLAN

ROCKY FLATS PLANT

881 HILLSIDE AREA

OPERABLE UNIT NO. 1

U.S. DEPARTMENT OF ENERGY
Rocky Flats Office
Golden, Colorado

JANUARY, 1990

Volume II - Appendices

REVIEWED FOR CLASSIFICATION/UCNI
By George H. Setlock
Date @ 6/12/90

APPENDIX A

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

APPENDIX A-1

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

ROCKY FLATS ALLUVIUM

APPENDIX A-1.1

OPERABLE UNIT NO. 1

SOILS SAMPLING RESULTS

ROCKY FLATS ALLUVIUM

TOTAL METALS

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
RF Alluvium - 1989			25312.00	12.1000U	15.8600	155.8000	11.2700	3.2000*	43079.00
BH0187	06/04/87	0.20 - 1.40	..	..	..	..	..	..	..
BH1587	06/03/87	0.00 - 5.00	..	..	..	..	..	3.5	..
BH6387	10/16/87	0.00 - 8.00	..	..	..	165	..	..	..
BH6387	10/16/87	12.00 - 13.70	..	..	..	..	..	..	..
BH6387	10/19/87	18.00 - 18.40	..	..	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
RF Alluvium - 1989			202.0000U	37.9000	18.2000*	20.0300	22916.00	18.0400	44.4000
BH0187	06/04/87	0.20 - 1.40	NR	..	..	..	..	..	NR
BH1587	06/03/87	0.00 - 5.00	NR	..	..	..	..	..	NR
BH6387	10/16/87	0.00 - 8.00	NR	..	..	..	..	..	..
BH6387	10/16/87	12.00 - 13.70	NR	..	..	..	..	..	..
BH6387	10/19/87	18.00 - 18.40	NR	..	..	..	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
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I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
RF Alluvium - 1989			4425.000	422.9000	0.5800*	38.6500	43.2700	3336.000	0.7700U
BH0187	06/04/87	0.20 - 1.40	..	..	..	NR	..	..	..
BH1587	06/03/87	0.00 - 5.00	..	..	0.60	NR	..	..	..
BH6387	10/16/87	0.00 - 8.00	5720	..	..	NR	..	..	..
BH6387	10/16/87	12.00 - 13.70	..	..	..	NR	..	..	..
BH6387	10/19/87	18.00 - 18.40	..	..	..	NR	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
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I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
RF Alluvium - 1989			40.9000*	1010.000U	226.0000*	1.5000U	338.0000*	54.6700	52.6400
BH0187	06/04/87	0.20 - 1.40	..	..	..	..	NR	..	..
BH1587	06/03/87	0.00 - 5.00	..	..	..	..	NR	..	66
BH6387	10/16/87	0.00 - 8.00	..	1430	..	..	NR	..	52.9
BH6387	10/16/87	12.00 - 13.70	..	..	..	..	NR	..	..
BH6387	10/19/87	18.00 - 18.40	..	..	..	..	NR	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
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APPENDIX A-1.2

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

ROCKY FLATS ALLUVIUM

INORGANICS

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
RF Alluvium - 1989			4.3000*	9.6400	13.0000*
BH0187	06/04/87	0.20 - 1.40	NR	..	..
BH1587	06/03/87	0.00 - 5.00	NR	..	..
BH6387	10/16/87	0.00 - 8.00	NR	..	..
BH6387	10/16/87	12.00 - 13.70	NR	..	..
BH6387	10/19/87	18.00 - 18.40	NR	..	..

NR = Analyte not reported
J = Present below detection limit
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* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX A-1.3

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

ROCKY FLATS ALLUVIUM

TOTAL RADIOCHEMISTRY

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
RF Alluvium - 1989			37.1080	36.8860	1.4910	0.0870
BH0187	06/04/87	0.20 - 1.40	..	..	..	NR
BH1587	06/03/87	0.00 - 5.00	..	..	..	NR
BH6387	10/16/87	0.00 - 8.00	..	..	..	NR
BH6387	10/16/87	12.00 - 13.70	..	..	..	NR
BH6387	10/19/87	18.00 - 18.40	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
RF Alluvium - 1989			1.3530	0.7680	0.0170	0.0180
BH0187	06/04/87	0.20 - 1.40	..	..	0.06 ± 0.11	0.03 ± 0.06
BH1587	06/03/87	0.00 - 5.00	..	..	0.09 ± 0.13	0.10 ± 0.12
BH6387	10/16/87	0.00 - 8.00	1.4 ± 0.2	..	..	..
BH6387	10/16/87	12.00 - 13.70	..	..	..	..
BH6387	10/19/87	18.00 - 18.40	..	..	..	0.05 ± 0.09

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
RF Alluvium - 1989			0.0820	0.4100	1.3340	2.8680
BH0187	06/04/87	0.20 - 1.40	1.3 ± 1.0	0.60 ± 0.22	NR	NR
BH1587	06/03/87	0.00 - 5.00	0.1 ± 0.8	..	NR	NR
BH6387	10/16/87	0.00 - 8.00	0.1 ± 0.1	..	NR	NR
BH6387	10/16/87	12.00 - 13.70	..	..	NR	NR
BH6387	10/19/87	18.00 - 18.40	..	..	NR	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
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! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX A-2

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

COLLUVIUM

APPENDIX A-2.1

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

COLLUVIUM

TOTAL METALS

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			21663.00	13.0000U	7.7000	345.8000	17.7500	1.8000*	20811.00
BH0287	05/27/87	0.00 - 11.80	..	..	..	..	..	..	..
BH0287	05/27/87	11.80 - 14.30	..	..	..	440.0	..	..	312000.0
BH0387	05/19/87	0.00 - 8.75	..	..	14	..	..	4.7	..
BH0387	05/19/87	2.00 - 4.00	INSUFFICIENT SAMPLE FOR TOTAL METALS ANALYSIS						
BH0387	05/19/87	2.45 - 3.90	..	..	14	..	..	4.5	..
BH0387	05/19/87	7.15 - 8.75	..	..	10	..	..	4.0	66700
BH0487	06/05/87	0.00 - 10.00	..	21	24	..	..	..	..
BH0587	05/19/87	0.00 - 4.50	..	..	8.6	..	..	3.4	..
BH0587	05/19/87	2.00 - 4.50	..	..	..	..	..	3.6	..
BH0687	05/20/87	0.00 - 10.00	..	..	11	..	..	4.2	..
BH0687	05/20/87	10.00 - 20.00	..	..	8.6	..	..	4.8	..
BH0687	05/20/87	24.10 - 25.50	..	..	12	..	..	3.5	..

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Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			274.0000*	26.8000	15.9000*	26.7000	29991.00	26.4000	32.1000
BH0287	05/27/87	0.00 - 11.80	NR	..	..	..	..	..	..
BH0287	05/27/87	11.80 - 14.30	NR	..	..	..	..	..	..
BH0387	05/19/87	0.00 - 8.75	NR	..	..	..	..	..	..
BH0387	05/19/87	2.00 - 4.00	INSUFFICIENT SAMPLE FOR TOTAL METALS ANALYSIS						
BH0387	05/19/87	2.45 - 3.90	NR	..	..	..	..	..	..
BH0387	05/19/87	7.15 - 8.75	NR	..	..	..	..	..	..
BH0487	06/05/87	0.00 - 10.00	NR	..	..	..	..	..	NR
BH0587	05/19/87	0.00 - 4.50	NR	..	..	..	..	..	..
BH0587	05/19/87	2.00 - 4.50	NR	..	..	..	..	..	..
BH0687	05/20/87	0.00 - 10.00	NR	..	..	..	..	..	..
BH0687	05/20/87	10.00 - 20.00	NR	..	..	..	..	..	..
BH0687	05/20/87	24.10 - 25.50	NR	..	..	..	..	..	..

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I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			6151.000	545.1000	0.4400*	32.7800	35.4000	2789.000	1¢1000U
BH0287	05/27/87	0.00 - 11.80	..	..	..	NR	..	..	..
BH0287	05/27/87	11.80 - 14.30	..	..	..	NR	..	..	..
BH0387	05/19/87	0.00 - 8.75	..	..	..	NR	..	..	..
BH0387	05/19/87	2.00 - 4.00	INSUFFICIENT SAMPLE FOR TOTAL METALS ANALYSIS						
BH0387	05/19/87	2.45 - 3.90	6330	..	..	NR	..	3040	..
BH0387	05/19/87	7.15 - 8.75	..	..	..	NR	..	..	..
BH0487	06/05/87	0.00 - 10.00	..	..	..	NR	..	..	..
BH0587	05/19/87	0.00 - 4.50	..	..	..	NR	..	..	..
BH0587	05/19/87	2.00 - 4.50	..	..	..	NR	..	..	..
BH0687	05/20/87	0.00 - 10.00	..	..	..	NR	..	..	..
BH0687	05/20/87	10.00 - 20.00	..	563	2.07	NR	..	..	..
BH0687	05/20/87	24.10 - 25.50	..	..	..	NR	..	..	..

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Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			33.5000*	3680.000*	111.1000	2.1000U	441.0000*	58.2000	98.1000
BH0287	05/27/87	0.00 - 11.80	..	..	..	..	NR	..	..
BH0287	05/27/87	11.80 - 14.30	..	..	..	..	NR	..	..
BH0387	05/19/87	0.00 - 8.75	..	..	..	..	NR	..	..
BH0387	05/19/87	2.00 - 4.00	INSUFFICIENT SAMPLE FOR TOTAL METALS ANALYSIS						
BH0387	05/19/87	2.45 - 3.90	..	..	..	..	NR	..	..
BH0387	05/19/87	7.15 - 8.75	..	..	129	..	NR	..	..
BH0487	06/05/87	0.00 - 10.00	..	..	..	..	NR	..	..
BH0587	05/19/87	0.00 - 4.50	..	..	..	..	NR	..	..
BH0587	05/19/87	2.00 - 4.50	..	..	..	..	NR	..	..
BH0687	05/20/87	0.00 - 10.00	..	..	..	..	NR	..	..
BH0687	05/20/87	10.00 - 20.00	..	..	..	..	NR	..	..
BH0687	05/20/87	24.10 - 25.50	..	..	..	..	NR	..	..

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Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			21663.00	13.0000U	7.7000	345.8000	17.7500	1.8000*	20811.00
BH0787	05/26/87	4.30 - 4.80	..	..	7.9	..	..	..	..
BH0887	06/03/98	0.00 - 6.10	..	..	12	..	..	4.3	..
BH0887	06/03/87	6.10 - 7.00	..	..	..	..	..	2.1	..
BH0987	05/29/87	0.00 - 10.00	..	..	..	..	..	..	..
BH0987	05/29/87	6.03 - 6.60	..	..	15	..	..	..	..
BH0987	05/29/87	10.08 - 11.30	..	..	..	..	..	..	..
BH1087	06/01/87	0.00 - 10.00	..	..	11	..	..	..	70800
BH1087	06/01/87	10.00 - 18.95	..	..	19	..	..	3.0	21600
BH1087	06/01/87	18.95 - 20.00	..	..	9.4	..	..	2.9	26200
BH1187	06/02/87	0.00 - 10.00	..	..	8.2	..	..	1.9	..
BH1187	06/02/87	8.70 - 10.70	..	..	13	..	..	3.4	..

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Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		274.0000*	26.8000	15.9000*	26.7000	29991.00	26.4000	32.1000
BH0787	05/26/87	4.30 - 4.80	NR	..	..	..	..	..	NR
BH0887	06/03/98	0.00 - 6.10	NR	..	..	..	..	..	NR
BH0887	06/03/87	6.10 - 7.00	NR	..	..	..	..	..	NR
BH0987	05/29/87	0.00 - 10.00	NR	..	..	..	..	..	NR
BH0987	05/29/87	6.03 - 6.60	NR	..	..	..	..	..	NR
BH0987	05/29/87	10.08 - 11.30	NR	..	..	..	..	..	..
BH1087	06/01/87	0.00 - 10.00	NR	..	..	..	..	..	NR
BH1087	06/01/87	10.00 - 18.95	NR	..	..	..	..	..	NR
BH1087	06/01/87	18.95 - 20.00	NR	..	..	..	..	..	NR
BH1187	06/02/87	0.00 - 10.00	NR	..	..	..	..	..	NR
BH1187	06/02/87	8.70 - 10.70	NR	..	..	..	..	..	NR

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! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		6151.000	545.1000	0.4400*	32.7800	35.4000	2789.000	1.1000U
BH0787	05/26/87	4.30 - 4.80	..	..	..	NR	..	..	..
BH0887	06/03/98	0.00 - 6.10	..	..	..	NR	..	..	..
BH0887	06/03/87	6.10 - 7.00	..	..	..	NR	..	..	..
BH0987	05/29/87	0.00 - 10.00	..	..	..	NR	..	..	..
BH0987	05/29/87	6.03 - 6.60	..	..	..	NR	..	..	..
BH0987	05/29/87	10.08 - 11.30	..	..	..	NR	..	..	..
BH1087	06/01/87	0.00 - 10.00	..	..	..	NR	..	..	..
BH1087	06/01/87	10.00 - 18.95	..	..	..	NR	..	..	..
BH1087	06/01/87	18.95 - 20.00	..	..	..	NR	..	..	..
BH1187	06/02/87	0.00 - 10.00	..	..	..	NR	..	..	..
BH1187	06/02/87	8.70 - 10.70	..	..	..	NR	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		33.5000*	3680.000*	111.1000	2.1000U	441.0000*	58.2000	98.1000
BH0787	05/26/87	4.30 - 4.80	..	..	..	..	NR	..	..
BH0887	06/03/98	0.00 - 6.10	..	..	..	..	NR	..	..
BH0887	06/03/87	6.10 - 7.00	..	..	..	..	NR	..	..
BH0987	05/29/87	0.00 - 10.00	..	..	..	..	NR	..	..
BH0987	05/29/87	6.03 - 6.60	..	..	..	..	NR	..	..
BH0987	05/29/87	10.08 - 11.30	..	..	..	..	NR	..	..
BH1087	06/01/87	0.00 - 10.00	..	..	..	..	NR	..	..
BH1087	06/01/87	10.00 - 18.95	..	..	..	..	NR	..	..
BH1087	06/01/87	18.95 - 20.00	..	..	..	..	NR	..	..
BH1187	06/02/87	0.00 - 10.00	..	..	..	..	NR	..	..
BH1187	06/02/87	8.70 - 10.70	..	..	..	..	NR	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			21663.00	13.0000U	7.7000	345.8000	17.7500	1.8000*	20811.00
BH1287	05/27/87	0.00 - 2.25	..	..	14	..	..	..	24800
BH1387	05/29/87	0.00 - 10.10	..	..	12	..	..	2.7	56400
BH1387	05/29/87	10.10 - 11.56	..	..	7.79	811.0	..	..	104000.0
BH1487	05/28/87	2.00 - 2.90	..	..	..	..	..	6.40	..
BH1487	05/28/87	5.50 - 6.50	..	..	7.71	..	..	..	..
BH1687	06/02/87	0.00 - 1.80	..	..	11	..	..	..	..
BH1787	06/03/87	0.00 - 3.90	..	..	10	..	..	3.8	..
BH1787	06/03/87	3.90 - 5.25	..	..	12	..	..	5.9	..
BH5787	10/07/87	4.00 - 5.80	..	..	..	..	..	2.1	..
BH5787	10/07/87	8.00 - 10.00	..	..	..	..	..	..	..
BH5787	10/07/87	10.00 - 12.00	..	..	..	..	..	2.4	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		274.0000*	26.8000	15.9000*	26.7000	29991.00	26.4000	32.1000
BH1287	05/27/87	0.00 - 2.25	NR	..	..	..	..	..	NR
BH1387	05/29/87	0.00 - 10.10	NR	..	..	..	..	..	NR
BH1387	05/29/87	10.10 - 11.56	NR	..	..	..	..	..	..
BH1487	05/28/87	2.00 - 2.90	NR	27.8	..	..	..	..	..
BH1487	05/28/87	5.50 - 6.50	NR	..	..	..	..	..	..
BH1687	06/02/87	0.00 - 1.80	NR	..	..	..	..	..	NR
BH1787	06/03/87	0.00 - 3.90	NR	..	..	..	..	..	NR
BH1787	06/03/87	3.90 - 5.25	NR	..	..	..	..	..	NR
BH5787	10/07/87	4.00 - 5.80	NR	..	..	..	..	..	NR
BH5787	10/07/87	8.00 - 10.00	NR	..	..	..	..	..	NR
BH5787	10/07/87	10.00 - 12.00	NR	..	..	..	..	..	NR

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		6151.000	545.1000	0.4400*	32.7800	35.4000	2789.000	1.1000U
BH1287	05/27/87	0.00 - 2.25	..	..	..	NR	..	..	..
BH1387	05/29/87	0.00 - 10.10	..	..	..	NR	..	..	..
BH1387	05/29/87	10.10 - 11.56	..	..	..	NR	..	..	..
BH1487	05/28/87	2.00 - 2.90	..	..	..	NR	..	..	..
BH1487	05/28/87	5.50 - 6.50	..	..	..	NR	..	..	..
BH1687	06/02/87	0.00 - 1.80	..	..	..	NR	..	..	..
BH1787	06/03/87	0.00 - 3.90	..	..	..	NR	..	..	..
BH1787	06/03/87	3.90 - 5.25	..	..	..	NR	..	..	..
BH5787	10/07/87	4.00 - 5.80	..	..	..	NR	..	..	..
BH5787	10/07/87	8.00 - 10.00	..	..	..	NR	..	..	..
BH5787	10/07/87	10.00 - 12.00	..	..	..	NR	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			33.5000*	3680.000*	111.1000	2.1000U	441.0000*	58.2000	98.1000
BH1287	05/27/87	0.00 - 2.25	..	..	..	..	NR	..	..
BH1387	05/29/87	0.00 - 10.10	..	..	135	..	NR	..	..
BH1387	05/29/87	10.10 - 11.56	..	..	178.0	..	NR	..	..
BH1487	05/28/87	2.00 - 2.90	..	..	..	..	NR	..	..
BH1487	05/28/87	5.50 - 6.50	..	..	..	..	NR	..	..
BH1687	06/02/87	0.00 - 1.80	..	..	..	..	NR	..	..
BH1787	06/03/87	0.00 - 3.90	..	..	..	..	NR	..	..
BH1787	06/03/87	3.90 - 5.25	..	..	..	..	NR	..	..
BH5787	10/07/87	4.00 - 5.80	..	..	..	..	NR	..	..
BH5787	10/07/87	8.00 - 10.00	..	..	..	..	NR	..	..
BH5787	10/07/87	10.00 - 12.00	..	..	..	..	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		21663.00	13.0000U	7.7000	345.8000	17.7500	1.8000*	20811.00
BH5887	10/08/87	0.00 - 1.70	..	..	..	..	..	3.5	..
BH5987	10/05/87	2.00 - 3.50	..	..	..	349	..	..	..
BH6187	10/12/87	6.50 - 9.00	..	..	..	..	..	2.0	73900
BH6287	10/21/87	0.00 - 8.00	..	..	10.1	..	..	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	..	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		274.0000*	26.8000	15.9000*	26.7000	29991.00	26.4000	32.1000
BH5887	10/08/87	0.00 - 1.70	NR	..	..	..	..	..	NR
BH5987	10/05/87	2.00 - 3.50	NR	..	..	..	..	..	NR
BH6187	10/12/87	6.50 - 9.00	NR	..	..	..	..	..	NR
BH6287	10/21/87	0.00 - 8.00	NR	..	..	..	..	..	NR
BH6287	10/21/87	0.00 - 8.00	NR	..	..	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium - 1989			6151.000	545.1000	0.4400*	32.7800	35.4000	2789.000	1.1000U
BH5887	10/08/87	0.00 - 1.70	..	..	..	NR	..	..	..
BH5987	10/05/87	2.00 - 3.50	..	..	..	NR	..	..	..
BH6187	10/12/87	6.50 - 9.00	..	..	..	NR	..	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	NR	..	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	NR	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Colluvium	- 1989		33.5000*	3680.000*	111.1000	2.1000U	441.0000*	58.2000	98.1000
BH5887	10/08/87	0.00 - 1.70	..	..	..	..	NR	..	..
BH5987	10/05/87	2.00 - 3.50	..	..	..	..	NR	..	..
BH6187	10/12/87	6.50 - 9.00	..	..	209	..	NR	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	..	NR	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	..	NR	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

APPENDIX A-2.2

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

COLLUVIUM

INORGANICS

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Colluvium	- 1989		4.2740	9.4800	5.0000*
BH0287	05/27/87	0.00 - 11.80	NR	..	..
BH0287	05/27/87	11.80 - 14.30	NR	..	..
BH0387	05/19/87	0.00 - 8.75	NR	NR	NR
BH0387	05/19/87	2.00 - 4.00	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS		
BH0387	05/19/87	2.45 - 3.90	NR	NR	NR
BH0387	05/19/87	7.15 - 8.75	NR	NR	NR
BH0487	06/05/87	0.00 - 10.00	NR	..	..
BH0487	06/05/87	10.30 - 12.80	NR	..	..
BH0587	05/19/87	0.00 - 4.50	NR	..	..
BH0587	05/19/87	2.00 - 4.50	NR	..	..
BH0687	05/20/87	0.00 - 10.00	NR	..	..
BH0687	05/20/87	10.00 - 20.00	NR	..	..
BH0687	05/20/87	24.10 - 25.50	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Colluvium	- 1989		4.2740	9.4800	5.0000*
BH0787	05/26/87	4.30 - 4.80	NR	..	..
BH0887	06/03/98	0.00 - 6.10	NR	..	..
BH0887	06/03/87	6.10 - 7.00	NR	..	..
BH0987	05/29/87	0.00 - 10.00	NR	..	..
BH0987	05/29/87	6.03 - 6.60	NR	..	..
BH0987	05/29/87	10.08 - 11.30	NR	..	..
BH1087	06/01/87	0.00 - 10.00	NR	..	..
BH1087	06/01/87	10.00 - 18.95	NR	..	..
BH1087	06/01/87	18.95 - 20.00	NR	..	..
BH1187	06/02/87	0.00 - 10.00	NR	..	..
BH1187	06/02/87	8.70 - 10.70	NR	..	..
BH1287	05/27/87	0.00 - 2.25	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Colluvium - 1989			4.2740	9.4800	5.0000*
BH1387	05/29/87	0.00 - 10.10	NR	..	..
BH1387	05/29/87	10.10 - 11.56	NR	..	..
BH1487	05/28/87	2.00 - 2.90	NR	..	..
BH1487	05/28/87	5.50 - 6.50	NR	..	..
BH1687	06/02/87	0.00 - 1.80	NR	..	..
BH1787	06/03/87	0.00 - 3.90	NR	..	..
BH1787	06/03/87	3.90 - 5.25	NR	..	..
BH5787	10/07/87	4.00 - 5.80	NR	..	..
BH5787	10/07/87	8.00 - 10.00	NR	..	..
BH5787	10/07/87	10.00 - 12.00	NR	..	..
BH5887	10/08/87	0.00 - 1.70	NR	..	..
BH5887	10/08/87	2.00 - 3.90	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Colluvium	- 1989		4.2740	9.4800	5.0000*
BH5987	10/05/87	2.00 - 3.50	NR	..	..
BH6187	10/12/87	6.50 - 9.00	NR	..	..
BH6287	10/21/87	0.00 - 8.00	NR	..	..
BH6287	10/21/87	0.00 - 8.00	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX A-2.3

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

COLLUVIUM

TOTAL RADIOCHEMISTRY

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Colluvium - 1989			51.7100	35.1350	1.7590	0.1690
BH0287	05/27/87	0.00 - 11.80	..	..	..	NR
BH0287	05/27/87	11.80 - 14.30	..	..	..	NR
BH0387	05/19/87	0.00 - 8.75	..	..	..	NR
BH0387	05/19/87	2.00 - 4.00	***			
BH0387	05/19/87	2.45 - 3.90	..	41 ± 6	..	NR
BH0387	05/19/87	7.15 - 8.75	..	..	..	NR
BH0487	06/05/87	0.00 - 10.00	..	..	..	NR
BH0487	06/05/87	10.30 - 12.80	..	..	..	NR
BH0587	05/19/87	0.00 - 4.50	..	..	..	NR
BH0587	05/19/87	2.00 - 4.50	..	..	..	NR
BH0687	05/20/87	0.00 - 10.00	..	..	..	NR
BH0687	05/20/87	10.00 - 20.00	..	38 ± 6	..	NR
BH0687	05/20/87	24.10 - 25.50	..	..	..	NR
BH0787	05/26/87	4.30 - 4.80	***			
BH0887	06/03/98	0.00 - 6.10	..	..	..	NR
BH0887	06/03/87	6.10 - 7.00	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Colluvium - 1989			1.6750	0.7760	0.0230	0.00001
BH0287	05/27/87	0.00 - 11.80	..	..	..	..
BH0287	05/27/87	11.80 - 14.30	..	..	..	0.07 ± 0.09
BH0387	05/19/87	0.00 - 8.75	..	0.9 ± 0.8	..	..
BH0387	05/19/87	2.00 - 4.00	***			
BH0387	05/19/87	2.45 - 3.90	..	..	..	0.04 ± 0.09
BH0387	05/19/87	7.15 - 8.75	..	..	..	..
BH0487	06/05/87	0.00 - 10.00	..	..	0.05 ± 0.10	0.10 ± 0.07
BH0487	06/05/87	10.30 - 12.80	..	..	..	0.05 ± 0.07
BH0587	05/19/87	0.00 - 4.50	1.9 ± 0.5	..	..	0.01 ± 0.07
BH0587	05/19/87	2.00 - 4.50	..	..	0.04 ± 0.07	0.03 ± 0.07
BH0687	05/20/87	0.00 - 10.00	..	..	..	0.02 ± 0.07
BH0687	05/20/87	10.00 - 20.00	..	1.3 ± 1.1	..	..
BH0687	05/20/87	24.10 - 25.50	..	..	..	..
BH0787	05/26/87	4.30 - 4.80	***			
BH0887	06/03/98	0.00 - 6.10	..	..	0.08 ± 0.09	0.06 ± 0.06
BH0887	06/03/87	6.10 - 7.00	..	..	..	..

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval 1 = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Colluvium	- 1989		0.1130	0.2990	2.5920	3.8180
BH0287	05/27/87	0.00 - 11.80	..	..	NR	NR
BH0287	05/27/87	11.80 - 14.30	..	0.34 ± 0.22	NR	NR
BH0387	05/19/87	0.00 - 8.75	..	..	NR	NR
BH0387	05/19/87	2.00 - 4.00	***			
BH0387	05/19/87	2.45 - 3.90	..	0.35 ± 0.20	NR	NR
BH0387	05/19/87	7.15 - 8.75	0.3 ± 0.8	..	NR	NR
BH0487	06/05/87	0.00 - 10.00	0.6 ± 0.7	..	NR	NR
BH0487	06/05/87	10.30 - 12.80	2.3 ± 0.9	..	NR	NR
BH0587	05/19/87	0.00 - 4.50	0.3 ± 0.7	0.32 ± 0.20	NR	NR
BH0587	05/19/87	2.00 - 4.50	0.3 ± 0.6	..	NR	NR
BH0687	05/20/87	0.00 - 10.00	0.6 ± 0.7	..	NR	NR
BH0687	05/20/87	10.00 - 20.00	0.4 ± 0.7	..	NR	NR
BH0687	05/20/87	24.10 - 25.50	0.5 ± 0.6	..	NR	NR
BH0787	05/26/87	4.30 - 4.80	***			
BH0887	06/03/98	0.00 - 6.10	1.1 ± 0.8	..	NR	NR
BH0887	06/03/87	6.10 - 7.00	0.3 ± 0.8	..	NR	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Colluvium	- 1989		51.7100	35.1350	1.7590	0.1690
BH0987	05/29/87	0.00 - 10.00	..	..	..	NR
BH0987	05/29/87	6.03 - 6.60	..	..	..	NR
BH0987	05/29/87	10.08 - 11.30	..	..	..	NR
BH1087	06/01/87	0.00 - 10.00	..	..	..	NR
BH1087	06/01/87	10.00 - 18.95	..	..	..	NR
BH1087	06/01/87	18.95 - 20.00	..	..	..	NR
BH1187	06/02/87	0.00 - 10.00	..	..	..	NR
BH1187	06/02/87	8.70 - 10.70	..	..	..	NR
BH1287	05/27/87	0.00 - 2.25	..	..	..	NR
BH1387	05/29/87	0.00 - 10.10	..	..	..	NR
BH1387	05/29/87	10.10 - 11.56	..	..	..	NR
BH1487	05/28/87	2.00 - 2.90	..	..	..	NR
BH1487	05/28/87	5.50 - 6.50	..	..	..	NR
BH1687	06/02/87	0.00 - 1.80	..	..	..	NR
BH1787	06/03/87	0.00 - 3.90	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Colluvium	- 1989		1.6750	0.7760	0.0230	0.00001
BH0987	05/29/87	0.00 - 10.00	..	..	..	0.03 ± 0.08
BH0987	05/29/87	6.03 - 6.60	..	..	..	..
BH0987	05/29/87	10.08 - 11.30	..	..	..	..
BH1087	06/01/87	0.00 - 10.00	..	..	..	..
BH1087	06/01/87	10.00 - 18.95	..	..	..	0.01 ± 0.08
BH1087	06/01/87	18.95 - 20.00	..	..	..	0.04 ± 0.09
BH1187	06/02/87	0.00 - 10.00	..	..	..	0.09 ± 0.10
BH1187	06/02/87	8.70 - 10.70	..	..	..	0.06 ± 0.11
BH1287	05/27/87	0.00 - 2.25	..	..	0.12 ± 0.14	0.15 ± 0.13
BH1387	05/29/87	0.00 - 10.10	..	1.9 ± 1.5	0.04 ± 0.12	0.03 ± 0.08
BH1387	05/29/87	10.10 - 11.56	..	1.2 ± 1.2	..	0.03 ± 0.08
BH1487	05/28/87	2.00 - 2.90	..	..	..	0.10 ± 0.11
BH1487	05/28/87	5.50 - 6.50	..	..	0.06 ± 0.07	0.02 ± 0.08
BH1687	06/02/87	0.00 - 1.80	..	0.9 ± 0.8	0.91 ± 0.38	0.02 ± 0.08
BH1787	06/03/87	0.00 - 3.90	..	..	0.38 ± 0.14	0.06 ± 0.07

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Colluvium - 1989			0.1130	0.2990	2.5920	3.8180
BH0987	05/29/87	0.00 - 10.00	..	..	NR	NR
BH0987	05/29/87	6.03 - 6.60	..	..	NR	NR
BH0987	05/29/87	10.08 - 11.30	..	0.30 ± 0.21	NR	NR
BH1087	06/01/87	0.00 - 10.00	0.2 ± 0.8	..	NR	NR
BH1087	06/01/87	10.00 - 18.95	0.4 ± 0.7	..	NR	NR
BH1087	06/01/87	18.95 - 20.00	0.9 ± 0.9	..	NR	NR
BH1187	06/02/87	0.00 - 10.00	..	..	NR	NR
BH1187	06/02/87	8.70 - 10.70	..	..	NR	NR
BH1287	05/27/87	0.00 - 2.25	0.8 ± 0.9	..	NR	NR
BH1387	05/29/87	0.00 - 10.10	..	..	NR	NR
BH1387	05/29/87	10.10 - 11.56	..	..	NR	NR
BH1487	05/28/87	2.00 - 2.90	0.6 ± 1.0	..	NR	NR
BH1487	05/28/87	5.50 - 6.50	..	..	NR	NR
BH1687	06/02/87	0.00 - 1.80	..	..	NR	NR
BH1787	06/03/87	0.00 - 3.90	0.9 ± 0.4	..	NR	NR

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Colluvium	- 1989		51.7100	35.1350	1.7590	0.1690
BH1787	06/03/87	3.90 - 5.25	..	..	..	NR
BH5787	10/07/87	4.00 - 5.80	..	..	..	NR
BH5787	10/07/87	8.00 - 10.00	..	..	..	NR
BH5787	10/07/87	10.00 - 12.00	..	..	..	NR
BH5887	10/08/87	0.00 - 1.70	..	..	..	NR
BH5887	10/08/87	2.00 - 3.90	..	..	..	NR
BH5987	10/05/87	2.00 - 3.50	..	..	..	NR
BH6187	10/12/87	6.50 - 9.00	..	..	..	NR
BH6287	10/21/87	0.00 - 8.00	..	..	..	NR
BH6287	10/21/87	0.00 - 8.00	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Colluvium - 1989			1.6750	0.7760	0.0230	0.00001
BH1787	06/03/87	3.90 - 5.25	..	..	0.04 ± 0.09	0.01 ± 0.04
BH5787	10/07/87	4.00 - 5.80	..	..	..	0.01 ± 0.09
BH5787	10/07/87	8.00 - 10.00	..	..	..	..
BH5787	10/07/87	10.00 - 12.00	..	..	0.09 ± 0.15	..
BH5887	10/08/87	0.00 - 1.70	..	..	0.09 ± 0.14	0.02 ± 0.11
BH5887	10/08/87	2.00 - 3.90	..	..	0.04 ± 0.12	..
BH5987	10/05/87	2.00 - 3.50	..	..	..	0.03 ± 0.10
BH6187	10/12/87	6.50 - 9.00	..	..	..	0.03 ± 0.09
BH6287	10/21/87	0.00 - 8.00	..	..	..	..
BH6287	10/21/87	0.00 - 8.00	..	..	..	..

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Colluvium - 1989			0.1130	0.2990	2.5920	3.8180
BH1787	06/03/87	3.90 - 5.25	0.9 ± 0.7	..	NR	NR
BH5787	10/07/87	4.00 - 5.80	..	..	NR	NR
BH5787	10/07/87	8.00 - 10.00	..	..	NR	NR
BH5787	10/07/87	10.00 - 12.00	..	..	NR	NR
BH5887	10/08/87	0.00 - 1.70	..	..	NR	NR
BH5887	10/08/87	2.00 - 3.90	..	..	NR	NR
BH5987	10/05/87	2.00 - 3.50	..	..	NR	NR
BH6187	10/12/87	6.50 - 9.00	..	..	NR	NR
BH6287	10/21/87	0.00 - 8.00	..	0.73 ± 0.21	NR	NR
BH6287	10/21/87	0.00 - 8.00	..	0.69 ± 0.21	NR	NR

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX A-3

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

CLAYSTONE

APPENDIX A-3.1

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

CLAYSTONE

TOTAL METALS

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		13495.00	16.2000*	15.0500	240.1000	11.8000	1.1000U	10183.00
BH0187	06/04/87	4.50 - 5.70	13500	..	..	..	..	2.8	..
BH0187	06/04/87	10.00 - 11.50	..	..	..	..	..	1.2	..
BH0287	05/27/87	12.00 - 14.30	..	..	..	..	..	..	..
BH0287	05/27/87	14.30 - 20.40	..	..	..	..	..	..	..
BH0287	05/27/87	17.90 - 18.60	..	..	..	..	..	..	..
BH0387	05/19/87	11.75 - 13.25	..	..	..	..	..	2.8	16300
BH0487	06/05/87	15.30 - 15.70	..	..	16	..	..	1.5	..
BH0487	06/05/87	19.30 - 20.30	..	21	18	..	..	1.9	..
BH0587	05/19/87	7.50 - 9.30	..	..	..	..	..	3.1	..
BH0687	05/20/87	27.00 - 30.00	..	..	..	..	..	3.4	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		212.0000U	16.5700	29.7000*	30.6200	41295.00	34.5000	33.3700
BH0187	06/04/87	4.50 - 5.70	NR	..	..	..	..	..	NR
BH0187	06/04/87	10.00 - 11.50	NR	..	..	..	..	..	NR
BH0287	05/27/87	12.00 - 14.30	NR	..	..	..	..	..	NR
BH0287	05/27/87	14.30 - 20.40	NR	..	..	..	..	..	NR
BH0287	05/27/87	17.90 - 18.60	NR	..	..	..	..	..	..
BH0387	05/19/87	11.75 - 13.25	NR	..	..	..	..	..	..
BH0487	06/05/87	15.30 - 15.70	NR	..	..	..	..	..	NR
BH0487	06/05/87	19.30 - 20.30	NR	..	..	..	..	..	NR
BH0587	05/19/87	7.50 - 9.30	NR	..	..	..	..	..	..
BH0687	05/20/87	27.00 - 30.00	NR	..	..	..	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Claystone - 1989			4896.000	656.0000	0.3500*	33.6800	56.9500	1400.000*	1.1000U
BH0187	06/04/87	4.50 - 5.70	..	..	..	NR	..	..	..
BH0187	06/04/87	10.00 - 11.50	..	..	..	NR	..	..	..
BH0287	05/27/87	12.00 - 14.30	..	..	..	NR	..	..	..
BH0287	05/27/87	14.30 - 20.40	..	..	..	NR	..	..	..
BH0287	05/27/87	17.90 - 18.60	..	..	..	NR	..	..	..
BH0387	05/19/87	11.75 - 13.25	..	..	..	NR	..	..	..
BH0487	06/05/87	15.30 - 15.70	..	..	..	NR	..	..	..
BH0487	06/05/87	19.30 - 20.30	..	..	..	NR	..	..	..
BH0587	05/19/87	7.50 - 9.30	..	..	..	NR	..	..	..
BH0687	05/20/87	27.00 - 30.00	..	..	..	NR	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		18.7000*	1060.000U	144.4200	2.1000U	274.0000*	47.7000	106.7000
BH0187	06/04/87	4.50 - 5.70	..	..	..	..	NR	..	..
BH0187	06/04/87	10.00 - 11.50	..	..	..	..	NR	..	..
BH0287	05/27/87	12.00 - 14.30	..	1090	..	..	NR	..	..
BH0287	05/27/87	14.30 - 20.40	..	..	..	..	NR	..	..
BH0287	05/27/87	17.90 - 18.60	..	..	..	..	NR	..	..
BH0387	05/19/87	11.75 - 13.25	..	..	..	..	NR	..	..
BH0487	06/05/87	15.30 - 15.70	..	..	..	..	NR	..	..
BH0487	06/05/87	19.30 - 20.30	..	..	..	..	NR	..	..
BH0587	05/19/87	7.50 - 9.30	..	..	..	..	NR	..	..
BH0687	05/20/87	27.00 - 30.00	..	..	..	..	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		13495.00	16.2000*	15.0500	240.1000	11.8000	1.1000U	10183.00
BH0787	05/26/87	5.00 - 10.00	..	..	..	..	..	..	..
BH0787	05/26/87	7.80 - 9.68	..	..	..	..	..	1.9	..
BH0787	05/26/87	9.68 - 10.35	..	..	..	..	..	..	..
BH0787	05/26/87	10.35 - 13.00	..	..	..	..	..	..	..
BH0887	06/03/87	10.20 - 12.10	20800	..	..	..	..	4.1	..
BH0987	05/29/87	14.30 - 14.75	..	..	..	..	..	..	..
BH1087	06/01/87	23.00 - 25.40	..	..	..	..	..	3.1	..
BH1187	06/02/87	13.90 - 17.00	..	..	..	..	..	6.6	..
BH1287	05/27/87	5.25 - 6.50	..	..	..	258	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		212.0000U	16.5700	29.7000*	30.6200	41295.00	34.5000	33.3700
BH0787	05/26/87	5.00 - 10.00	NR	..	..	..	..	..	NR
BH0787	05/26/87	7.80 - 9.68	NR	..	..	..	..	..	NR
BH0787	05/26/87	9.68 - 10.35	NR	..	..	..	..	..	NR
BH0787	05/26/87	10.35 - 13.00	NR	..	..	..	..	..	NR
BH0887	06/03/87	10.20 - 12.10	NR	20	..	..	..	..	NR
BH0987	05/29/87	14.30 - 14.75	NR	..	..	..	..	..	NR
BH1087	06/01/87	23.00 - 25.40	NR	..	..	..	..	..	NR
BH1187	06/02/87	13.90 - 17.00	NR	..	36	..	67200	..	NR
BH1287	05/27/87	5.25 - 6.50	NR	..	..	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		4896.000	656.0000	0.3500*	33.6800	56.9500	1400.000*	1.1000U
BH0787	05/26/87	5.00 - 10.00	..	..	..	NR	..	..	..
BH0787	05/26/87	7.80 - 9.68	..	..	..	NR	..	..	..
BH0787	05/26/87	9.68 - 10.35	..	..	..	NR	..	..	..
BH0787	05/26/87	10.35 - 13.00	..	..	..	NR	..	..	..
BH0887	06/03/87	10.20 - 12.10	..	..	..	NR	..	1780	..
BH0987	05/29/87	14.30 - 14.75	..	..	..	NR	..	..	..
BH1087	06/01/87	23.00 - 25.40	..	..	..	NR	..	..	..
BH1187	06/02/87	13.90 - 17.00	..	..	..	NR	71	..	..
BH1287	05/27/87	5.25 - 6.50	..	..	1.63	NR	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		18.7000*	1060.000U	144.4200	2.1000U	274.0000*	47.7000	106.7000
BH0787	05/26/87	5.00 - 10.00	..	..	..	..	NR	..	..
BH0787	05/26/87	7.80 - 9.68	..	..	..	..	NR	..	..
BH0787	05/26/87	9.68 - 10.35	..	..	..	..	NR	..	..
BH0787	05/26/87	10.35 - 13.00	..	..	..	..	NR	..	..
BH0887	06/03/87	10.20 - 12.10	..	1570	..	..	NR	49	108
BH0987	05/29/87	14.30 - 14.75	..	..	..	..	NR	..	..
BH1087	06/01/87	23.00 - 25.40	..	1130	..	..	NR	..	..
BH1187	06/02/87	13.90 - 17.00	..	2230	..	..	NR	..	159
BH1287	05/27/87	5.25 - 6.50	..	..	..	..	NR	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		13495.00	16.2000*	15.0500	240.1000	11.8000	1.1000U	10183.00
BH1387	05/29/87	14.56 - 16.20	..	..	..	..	..	4.1	..
BH1487	05/28/87	6.50 - 9.00	..	..	..	..	..	9	..
BH1487	05/28/87	7.75 - 8.00	13600	..	..	..	..	..	..
BH1587	06/03/87	24.10 - 25.80	15800	..	..	..	..	2.9	..
BH1687	06/02/87	2.00 - 6.00	..	..	..	..	..	1.6	12700
BH1687	06/02/87	6.00 - 6.50	..	..	..	..	..	..	..
BH1787	06/03/87	8.25 - 8.70	22000	..	..	..	..	4.1	..
BH5787	10/07/87	12.00 - 14.00	15400	..	..	..	..	2.1	10300
BH5787	10/08/87	14.00 - 16.00	..	..	..	..	..	3.0	..
BH5787	10/08/87	16.00 - 18.00	..	..	..	..	..	2.8	..
BH5787	10/08/87	18.00 - 20.00	..	..	..	..	..	2.0	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		212.0000U	16.5700	29.7000*	30.6200	41295.00	34.5000	33.3700
BH1387	05/29/87	14.56 - 16.20	NR	..	..	..	..	..	NR
BH1487	05/28/87	6.50 - 9.00	NR	..	..	..	43300	..	..
BH1487	05/28/87	7.75 - 8.00	NR	18.2	..	..	..	..	..
BH1587	06/03/87	24.10 - 25.80	NR	..	..	..	..	..	NR
BH1687	06/02/87	2.00 - 6.00	NR	..	..	..	..	..	NR
BH1687	06/02/87	6.00 - 6.50	NR	..	..	..	..	..	NR
BH1787	06/03/87	8.25 - 8.70	NR	19	..	..	..	..	NR
BH5787	10/07/87	12.00 - 14.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	14.00 - 16.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	16.00 - 18.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	18.00 - 20.00	NR	..	..	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		4896.000	656.0000	0.3500*	33.6800	56.9500	1400.000*	1.1000U
BH1387	05/29/87	14.56 - 16.20	..	..	..	NR	..	..	..
BH1487	05/28/87	6.50 - 9.00	..	..	..	NR	..	..	..
BH1487	05/28/87	7.75 - 8.00	..	..	..	NR	..	1506	..
BH1587	06/03/87	24.10 - 25.80	..	..	0.58	NR	..	..	..
BH1687	06/02/87	2.00 - 6.00	..	..	..	NR	..	..	..
BH1687	06/02/87	6.00 - 6.50	..	..	..	NR	..	..	..
BH1787	06/03/87	8.25 - 8.70	..	..	..	NR	..	1690	..
BH5787	10/07/87	12.00 - 14.00	..	..	..	NR	..	..	..
BH5787	10/08/87	14.00 - 16.00	..	..	..	NR	..	..	..
BH5787	10/08/87	16.00 - 18.00	..	..	..	NR	..	1410	..
BH5787	10/08/87	18.00 - 20.00	..	..	..	NR	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		18.7000*	1060.000U	144.4200	2.1000U	274.0000*	47.7000	106.7000
BH1387	05/29/87	14.56 - 16.20	..	1100	..	..	NR	..	..
BH1487	05/28/87	6.50 - 9.00	..	..	..	..	NR	..	..
BH1487	05/28/87	7.75 - 8.00	..	..	..	..	NR	..	120.0
BH1587	06/03/87	24.10 - 25.80	..	..	..	..	NR	..	..
BH1687	06/02/87	2.00 - 6.00	..	..	..	..	NR	..	..
BH1687	06/02/87	6.00 - 6.50	..	..	..	..	NR	..	..
BH1787	06/03/87	8.25 - 8.70	..	..	..	..	NR	..	..
BH5787	10/07/87	12.00 - 14.00	..	..	..	..	NR	..	..
BH5787	10/08/87	14.00 - 16.00	..	..	149	..	NR	..	..
BH5787	10/08/87	16.00 - 18.00	..	..	..	..	NR	..	138
BH5787	10/08/87	18.00 - 20.00	..	..	..	..	NR	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		13495.00	16.2000*	15.0500	240.1000	11.8000	1.1000U	10183.00
BH5787	10/08/87	20.00 - 22.00	..	..	..	..	..	2.1	..
BH5787	10/08/87	22.00 - 24.00	..	..	..	..	..	2.6	..
BH5787	10/08/87	24.00 - 26.00	..	..	..	..	..	6.6	..
BH5787	10/08/87	26.00 - 28.00	..	..	..	..	..	2.4	..
BH5787	10/08/87	28.00 - 30.00	..	..	..	..	..	2.6	..
BH5887	10/08/87	4.00 - 7.10	..	..	..	..	..	1.2	..
BH5987	10/05/87	4.00 - 7.00	19600	..	..	347	..	4.3	..
BH5987	10/05/87	7.00 - 9.80	..	..	..	..	..	1.4	..
BH6187	10/13/87	9.00 - 11.50	..	..	..	..	..	1.8	29800
BH6187	10/13/87	11.50 - 14.00	..	..	..	..	..	..	21900
BH6287	10/21/87	12.50 - 14.00	..	..	..	..	..	..	..
BH6287	10/21/87	14.00 - 16.00	..	..	..	..	..	1.3	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		212.0000U	16.5700	29.7000*	30.6200	41295.00	34.5000	33.3700
BH5787	10/08/87	20.00 - 22.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	22.00 - 24.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	24.00 - 26.00	NR	..	33.1	..	57700	..	NR
BH5787	10/08/87	26.00 - 28.00	NR	..	..	..	..	..	NR
BH5787	10/08/87	28.00 - 30.00	NR	..	..	..	..	..	NR
BH5887	10/08/87	4.00 - 7.10	NR	..	..	..	..	..	NR
BH5987	10/05/87	4.00 - 7.00	NR	24.2	..	..	..	..	NR
BH5987	10/05/87	7.00 - 9.80	NR	..	..	..	..	..	NR
BH6187	10/13/87	9.00 - 11.50	NR	..	..	..	..	..	NR
BH6187	10/13/87	11.50 - 14.00	NR	..	..	..	..	..	NR
BH6287	10/21/87	12.50 - 14.00	NR	..	..	..	..	..	NR
BH6287	10/21/87	14.00 - 16.00	NR	..	..	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		4896.000	656.0000	0.3500*	33.6800	56.9500	1400.000*	1.1000U
BH5787	10/08/87	20.00 - 22.00	..	..	..	NR	..	..	..
BH5787	10/08/87	22.00 - 24.00	..	..	..	NR	..	..	..
BH5787	10/08/87	24.00 - 26.00	..	..	..	NR	63.2	1500	..
BH5787	10/08/87	26.00 - 28.00	..	..	..	NR	..	1430	..
BH5787	10/08/87	28.00 - 30.00	..	..	..	NR	..	..	..
BH5887	10/08/87	4.00 - 7.10	..	..	..	NR	..	..	..
BH5987	10/05/87	4.00 - 7.00	6490	..	..	NR	..	2050	..
BH5987	10/05/87	7.00 - 9.80	..	..	..	NR	..	..	..
BH6187	10/13/87	9.00 - 11.50	..	..	0.57	NR	..	..	..
BH6187	10/13/87	11.50 - 14.00	..	..	..	NR	..	..	..
BH6287	10/21/87	12.50 - 14.00	..	..	..	NR	..	..	..
BH6287	10/21/87	14.00 - 16.00	..	..	..	NR	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		18.7000*	1060.000U	144.4200	2.1000U	274.0000*	47.7000	106.7000
BH5787	10/08/87	20.00 - 22.00	..	..	..	..	NR	..	..
BH5787	10/08/87	22.00 - 24.00	..	..	..	..	NR	..	..
BH5787	10/08/87	24.00 - 26.00	..	1890	..	..	NR	..	135
BH5787	10/08/87	26.00 - 28.00	..	..	..	..	NR	..	..
BH5787	10/08/87	28.00 - 30.00	..	..	..	..	NR	..	..
BH5887	10/08/87	4.00 - 7.10	..	..	..	..	NR	..	..
BH5987	10/05/87	4.00 - 7.00	..	..	..	..	NR	49.4	..
BH5987	10/05/87	7.00 - 9.80	..	..	..	..	NR	..	..
BH6187	10/13/87	9.00 - 11.50	..	..	..	..	NR	..	..
BH6187	10/13/87	11.50 - 14.00	..	..	..	..	NR	..	..
BH6287	10/21/87	12.50 - 14.00	..	..	..	..	NR	..	..
BH6287	10/21/87	14.00 - 16.00	..	..	..	..	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		13495.00	16.2000*	15.0500	240.1000	11.8000	1.1000U	10183.00
BH6387	10/19/87	22.00 - 22.50	..	..	..	..	..	..	..
BH6387	10/19/87	24.50 - 26.00	..	..	..	..	..	3.1	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		212.0000U	16.5700	29.7000*	30.6200	41295.00	34.5000	33.3700
BH6387	10/19/87	22.00 - 22.50	NR	..	..	..	..	35.2	..
BH6387	10/19/87	24.50 - 26.00	NR	..	..	..	..	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		4896.000	656.0000	0.3500*	33.6800	56.9500	1400.000*	1.1000U
BH6387	10/19/87	22.00 - 22.50	..	..	..	NR	..	..	..
BH6387	10/19/87	24.50 - 26.00	..	..	..	NR	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval									
Claystone	- 1989		18.7000*	1060.000U	144.4200	2.1000U	274.0000*	47.7000	106.7000
BH6387	10/19/87	22.00 - 22.50	..	..	..	..	NR	..	..
BH6387	10/19/87	24.50 - 26.00	..	1260	..	..	NR	..	185

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX A-3.2

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

CLAYSTONE

INORGANICS

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Claystone	- 1989		2.0000*	10.1400	5.0000*
BH0187	06/04/87	4.50 - 5.70	NR	..	..
BH0187	06/04/87	10.00 - 11.50	NR	..	..
BH0287	05/27/87	12.00 - 14.30	NR	..	..
BH0287	05/27/87	14.30 - 20.40	NR	..	..
BH0287	05/27/87	17.90 - 18.60	NR	..	..
BH0387	05/19/87	11.75 - 13.25	NR	..	..
BH0487	06/05/87	15.30 - 15.70	NR	..	..
BH0487	06/05/87	19.30 - 20.30	NR	..	..
BH0587	05/19/87	7.50 - 9.30	NR	..	..
BH0687	05/20/87	27.00 - 30.00	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Claystone - 1989			2.0000*	10.1400	5.0000*
BH0787	05/26/87	5.00 - 10.00	NR	..	..
BH0787	05/26/87	7.80 - 9.68	NR	..	..
BH0787	05/26/87	9.68 - 10.35	NR	..	..
BH0787	05/26/87	10.35 - 13.00	NR	..	..
BH0887	06/03/87	10.20 - 12.10	NR	..	..
BH0987	05/29/87	14.30 - 14.75	NR	..	..
BH1087	06/01/87	23.00 - 25.40	NR	..	..
BH1187	06/02/87	13.90 - 17.00	NR	..	..
BH1287	05/27/87	5.25 - 6.50	NR	..	..
BH1387	05/29/87	14.56 - 16.20	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Claystone - 1989			2.0000*	10.1400	5.0000*
BH1487	05/28/87	6.50 - 9.00	NR	..	..
BH1487	05/28/87	7.75 - 8.00	NR	..	..
BH1587	06/03/87	24.10 - 25.80	NR	..	..
BH1687	06/02/87	2.00 - 6.00	NR	..	..
BH1687	06/02/87	6.00 - 6.50	NR	..	..
BH1787	06/03/87	8.25 - 8.70	NR	..	..
BH5787	10/07/87	12.00 - 14.00	NR	..	..
BH5787	10/08/87	14.00 - 16.00	NR	..	..
BH5787	10/08/87	16.00 - 18.00	NR	..	..
BH5787	10/08/87	18.00 - 20.00	NR	..	..
BH5787	10/08/87	20.00 - 22.00	NR	..	..
BH5787	10/08/87	22.00 - 24.00	NR	..	..
BH5787	10/08/87	24.00 - 26.00	NR	..	..
BH5787	10/08/87	26.00 - 28.00	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Inorganic Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit	Sulfide MG/KG
Upper Limit of Tolerance Interval					
Claystone	- 1989		2.0000*	10.1400	5.0000*
BH5787	10/08/87	28.00 - 30.00	NR	..	..
BH5887	10/08/87	4.00 - 7.10	NR	..	..
BH5987	10/05/87	4.00 - 7.00	NR	..	..
BH5987	10/05/87	7.00 - 9.80	NR	..	..
BH6187	10/13/87	9.00 - 11.50	NR	..	..
BH6187	10/13/87	11.50 - 14.00	NR	..	..
BH6287	10/21/87	12.50 - 14.00	NR	..	..
BH6287	10/21/87	14.00 - 16.00	NR	..	..
BH6387	10/19/87	22.00 - 22.50	NR	..	..
BH6387	10/19/87	24.50 - 26.00	NR	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

APPENDIX A-3.3

OPERABLE UNIT NO. 1

SOIL SAMPLING RESULTS

CLAYSTONE

TOTAL RADIOCHEMISTRY

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		46.0000*	32.0000*	1.7000*	0.3000*
BH0187	06/04/87	4.50 - 5.70	..	..	..	NR
BH0187	06/04/87	10.00 - 11.50	..	..	..	NR
BH0287	05/27/87	12.00 - 14.30	***			
BH0287	05/27/87	14.30 - 20.40	..	..	..	NR
BH0287	05/27/87	17.90 - 18.60	..	..	..	NR
BH0387	05/19/87	11.75 - 13.25	..	..	..	NR
BH0487	06/05/87	15.30 - 15.70	..	..	..	NR
BH0487	06/05/87	19.30 - 20.30	..	..	..	NR
BH0587	05/19/87	7.50 - 9.30	..	..	..	NR
BH0687	05/20/87	27.00 - 30.00	..	..	..	NR
BH0787	05/26/87	5.00 - 10.00	***			
BH0787	05/26/87	7.80 - 9.68	..	..	..	NR
BH0787	05/26/87	9.68 - 10.35	***			
BH0787	05/26/87	10.35 - 13.00	..	..	..	NR
BH0887	06/03/87	10.20 - 12.10	..	..	..	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		1.4000*	0.7000*	0.0100*	0.0000!
BH0187	06/04/87	4.50 - 5.70	..	..	..	..
BH0187	06/04/87	10.00 - 11.50	..	..	0.03 ± 0.08	0.04 ± 0.06
BH0287	05/27/87	12.00 - 14.30	***			
BH0287	05/27/87	14.30 - 20.40	..	..	0.10 ± 0.18	0.03 ± 0.07
BH0287	05/27/87	17.90 - 18.60	..	..	0.03 ± 0.09	0.02 ± 0.06
BH0387	05/19/87	11.75 - 13.25	..	..	..	..
BH0487	06/05/87	15.30 - 15.70	..	..	0.07 ± 0.12	0.02 ± 0.06
BH0487	06/05/87	19.30 - 20.30	..	..	0.03 ± 0.09	..
BH0587	05/19/87	7.50 - 9.30	..	..	0.02 ± 0.17	0.04 ± 0.09
BH0687	05/20/87	27.00 - 30.00	..	..	..	0.01 ± 0.07
BH0787	05/26/87	5.00 - 10.00	***			
BH0787	05/26/87	7.80 - 9.68	..	..	..	0.07 ± 0.10
BH0787	05/26/87	9.68 - 10.35	***			
BH0787	05/26/87	10.35 - 13.00	..	1.2 ± 1.3	..	..
BH0887	06/03/87	10.20 - 12.10	..	..	..	..

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		0.0000*	0.2800*	1.3000*	1.6000*
BH0187	06/04/87	4.50 - 5.70	0.7 ± 1.0	0.50 ± 0.22	NR	NR
BH0187	06/04/87	10.00 - 11.50	0.3 ± 0.8	..	NR	NR
BH0287	05/27/87	12.00 - 14.30	***			
BH0287	05/27/87	14.30 - 20.40	0.2 ± 0.9	..	NR	NR
BH0287	05/27/87	17.90 - 18.60	..	..	NR	NR
BH0387	05/19/87	11.75 - 13.25	0.5 ± 0.8	0.41 ± 0.20	NR	NR
BH0487	06/05/87	15.30 - 15.70	1.0 ± 0.8	..	NR	NR
BH0487	06/05/87	19.30 - 20.30	0.3 ± 0.9	..	NR	NR
BH0587	05/19/87	7.50 - 9.30	0.4 ± 0.7	..	NR	NR
BH0687	05/20/87	27.00 - 30.00	0.4 ± 0.6	..	NR	NR
BH0787	05/26/87	5.00 - 10.00	***			
BH0787	05/26/87	7.80 - 9.68	0.5 ± 0.8	0.46 ± 0.23	NR	NR
BH0787	05/26/87	9.68 - 10.35	***			
BH0787	05/26/87	10.35 - 13.00	2.6 ± 0.9	..	NR	NR
BH0887	06/03/87	10.20 - 12.10	0.4 ± 0.7	..	NR	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		46.0000*	32.0000*	1.7000*	0.3000*
BH0987	05/29/87	14.30 - 14.75	..	..	..	NR
BH1087	06/01/87	23.00 - 25.40	..	33 ± 6	..	NR
BH1187	06/02/87	13.90 - 17.00	..	..	..	NR
BH1287	05/27/87	5.25 - 6.50	..	..	..	NR
BH1387	05/29/87	14.56 - 16.20	..	..	..	NR
BH1487	05/28/87	6.50 - 9.00	..	..	..	NR
BH1487	05/28/87	7.75 - 8.00	..	..	..	NR
BH1587	06/03/87	24.10 - 25.80	..	..	..	NR
BH1687	06/02/87	2.00 - 6.00	..	..	..	NR
BH1687	06/02/87	6.00 - 6.50	..	..	..	NR
BH1787	06/03/87	8.25 - 8.70	..	..	..	NR
BH5787	10/07/87	12.00 - 14.00	..	..	..	NR
BH5787	10/08/87	14.00 - 16.00	..	..	..	NR

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		1.4000*	0.7000*	0.0100*	0.00001
BH0987	05/29/87	14.30 - 14.75	..	0.8 ± 1.2	..	0.03 ± 0.09
BH1087	06/01/87	23.00 - 25.40	..	..	..	0.03 ± 0.08
BH1187	06/02/87	13.90 - 17.00	..	..	..	0.06 ± 0.12
BH1287	05/27/87	5.25 - 6.50	..	..	0.03 ± 0.13	..
BH1387	05/29/87	14.56 - 16.20	..	1.1 ± 1.3	..	0.03 ± 0.08
BH1487	05/28/87	6.50 - 9.00	..	..	..	0.01 ± 0.08
BH1487	05/28/87	7.75 - 8.00	..	..	..	..
BH1587	06/03/87	24.10 - 25.80	..	..	0.07 ± 0.14	0.02 ± 0.05
BH1687	06/02/87	2.00 - 6.00	..	..	..	..
BH1687	06/02/87	6.00 - 6.50	..	0.9 ± 1.1	..	0.01 ± 0.08
BH1787	06/03/87	8.25 - 8.70	..	..	..	0.02 ± 0.05
BH5787	10/07/87	12.00 - 14.00	..	..	..	..
BH5787	10/08/87	14.00 - 16.00	..	..	0.02 ± 0.13	..

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		0.0000*	0.2800*	1.3000*	1.6000*
BH0987	05/29/87	14.30 - 14.75	0.1 ± 0.8	..	NR	NR
BH1087	06/01/87	23.00 - 25.40	0.1 ± 0.6	..	NR	NR
BH1187	06/02/87	13.90 - 17.00	..	..	NR	NR
BH1287	05/27/87	5.25 - 6.50	1.7 ± 0.9	..	NR	NR
BH1387	05/29/87	14.56 - 16.20	..	..	NR	NR
BH1487	05/28/87	6.50 - 9.00	0.4 ± 1.6	..	NR	NR
BH1487	05/28/87	7.75 - 8.00	0.1 ± 0.9	..	NR	NR
BH1587	06/03/87	24.10 - 25.80	0.3 ± 0.7	..	NR	NR
BH1687	06/02/87	2.00 - 6.00	..	..	NR	NR
BH1687	06/02/87	6.00 - 6.50	..	..	NR	NR
BH1787	06/03/87	8.25 - 8.70	0.2 ± 0.8	..	NR	NR
BH5787	10/07/87	12.00 - 14.00	..	..	NR	NR
BH5787	10/08/87	14.00 - 16.00	..	..	NR	NR

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		46.0000*	32.0000*	1.7000*	0.3000*
BH5787	10/08/87	16.00 - 18.00	..	35 ± 7	..	NR
BH5787	10/08/87	18.00 - 20.00	..	..	..	NR
BH5787	10/08/87	20.00 - 22.00	..	..	..	NR
BH5787	10/08/87	22.00 - 24.00	..	..	..	NR
BH5787	10/08/87	24.00 - 26.00	..	34 ± 6	2.2 ± 0.2	NR
BH5787	10/08/87	26.00 - 28.00	..	..	..	NR
BH5787	10/08/87	28.00 - 30.00	..	..	..	NR
BH5887	10/08/87	4.00 - 7.10	..	..	..	NR
BH5987	10/05/87	4.00 - 7.00	..	..	..	NR
BH5987	10/05/87	7.00 - 9.80	..	..	..	NR
BH6187	10/13/87	9.00 - 11.50	..	..	..	NR
BH6187	10/13/87	11.50 - 14.00	..	..	..	NR
BH6287	10/21/87	12.50 - 14.00	..	..	..	NR
BH6287	10/21/87	14.00 - 16.00	..	..	..	NR
BH6387	10/19/87	22.00 - 22.50	..	..	..	NR
BH6387	10/19/87	24.50 - 26.00	..	33 ± 7	2.0 ± 0.2	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Upper Limit of Tolerance Interval						
Claystone	- 1989		1.4000*	0.7000*	0.0100*	0.00001
BH5787	10/08/87	16.00 - 18.00	..	..	0.02 ± 0.13	..
BH5787	10/08/87	18.00 - 20.00	..	..	..	..
BH5787	10/08/87	20.00 - 22.00	..	..	..	..
BH5787	10/08/87	22.00 - 24.00	..	..	..	..
BH5787	10/08/87	24.00 - 26.00	1.8 ± 0.2	..	..	0.01 ± 0.10
BH5787	10/08/87	26.00 - 28.00	1.5 ± 0.2	..	0.04 ± 0.12	..
BH5787	10/08/87	28.00 - 30.00	..	..	0.02 ± 0.12	..
BH5887	10/08/87	4.00 - 7.10	..	..	..	..
BH5987	10/05/87	4.00 - 7.00	..	..	..	..
BH5987	10/05/87	7.00 - 9.80	..	..	0.07 ± 0.29	..
BH6187	10/13/87	9.00 - 11.50	..	..	..	..
BH6187	10/13/87	11.50 - 14.00	..	..	0.06 ± 0.14	0.09 ± 0.09
BH6287	10/21/87	12.50 - 14.00	..	..	0.07 ± 0.27	..
BH6287	10/21/87	14.00 - 16.00	..	..	..	..
BH6387	10/19/87	22.00 - 22.50	..	..	0.04 ± 0.25	0.01 ± 0.08
BH6387	10/19/87	24.50 - 26.00	1.9 ± 0.2	..	0.14 ± 0.30	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Total Radiochemistry Results for Boreholes at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE CLAYSTONE

Borehole Number	Date Sampled	Depth Increment (ft.)	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Upper Limit of Tolerance Interval						
Claystone - 1989			0.0000*	0.2800*	1.3000*	1.6000*
BH5787	10/08/87	16.00 - 18.00	..	..	NR	NR
BH5787	10/08/87	18.00 - 20.00	..	..	NR	NR
BH5787	10/08/87	20.00 - 22.00	..	..	NR	NR
BH5787	10/08/87	22.00 - 24.00	..	..	NR	NR
BH5787	10/08/87	24.00 - 26.00	..	..	NR	NR
BH5787	10/08/87	26.00 - 28.00	..	..	NR	NR
BH5787	10/08/87	28.00 - 30.00	..	..	NR	NR
BH5887	10/08/87	4.00 - 7.10	..	..	NR	NR
BH5987	10/05/87	4.00 - 7.00	..	..	NR	NR
BH5987	10/05/87	7.00 - 9.80	..	..	NR	NR
BH6187	10/13/87	9.00 - 11.50	..	..	NR	NR
BH6187	10/13/87	11.50 - 14.00	..	..	NR	NR
BH6287	10/21/87	12.50 - 14.00	..	0.73 ± 0.21	NR	NR
BH6287	10/21/87	14.00 - 16.00	..	0.40 ± 0.20	NR	NR
BH6387	10/19/87	22.00 - 22.50	..	..	NR	NR
BH6387	10/19/87	24.50 - 26.00	..	..	NR	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX B

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

APPENDIX B-1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

ROCKY FLATS ALLUVIUM

APPENDIX B-1.1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

ROCKY FLATS ALLUVIUM

VOLATILE ORGANICS

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
01-87	01/12/89	1	DRY						
01-87	04/13/89	2	DRY						
51-87	01/18/89	1	DRY						
51-87	04/13/89	2	DRY						
52-87	01/16/89	1	10 U R	10 U R	10 U	10 U	6 U	10 U	5 U
52-87	01/16/89	1	10 U R	10 U R	10 U	10 U	6 U	10 U	5 U
52-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
01-87	01/12/89	1	DRY						
01-87	04/13/89	2	DRY						
51-87	01/18/89	1	DRY						
51-87	04/13/89	2	DRY						
52-87	01/16/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
52-87	01/16/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
52-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
01-87	01/12/89	1	DRY						
01-87	04/13/89	2	DRY						
51-87	01/18/89	1	DRY						
51-87	04/13/89	2	DRY						
52-87	01/16/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
52-87	01/16/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
52-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
01-87	01/12/89	1	DRY						
01-87	04/13/89	2	DRY						
51-87	01/18/89	1	DRY						
51-87	04/13/89	2	DRY						
52-87	01/16/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
52-87	01/16/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
52-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
01-87	01/12/89	1	DRY						
01-87	04/13/89	2	DRY						
51-87	01/18/89	1	DRY						
51-87	04/13/89	2	DRY						
52-87	01/16/89	1	10 U	2 J	5 U	5 U	5 U	5 U	5 U
52-87	01/16/89	1	10 U	1 J	5 U	5 U	5 U	5 U	5 U
52-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
01-87	01/12/89	1	DRY
01-87	04/13/89	2	DRY
51-87	01/18/89	1	DRY
51-87	04/13/89	2	DRY
52-87	01/16/89	1	5 U
52-87	01/16/89	1	5 U
52-87	04/17/89	2	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

APPENDIX B-1.2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

ROCKY FLATS ALLUVIUM

DISSOLVED METALS

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.200000U	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	85.00000
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
01-87	04/11/88	1	DRY						
51-87	02/12/88	1	DRY						
52-87	02/12/88	1	..	..	..	..	..	..	104.3593

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.100000U	0.010000U	0.050000U	0.025000U	0.266000*	0.005000U	0.010000U
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
01-87	04/11/88	1	DRY						
51-87	02/12/88	1	DRY						
52-87	02/12/88	1	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			5.790000*	0.365000	0.000200U	0.013600*	0.043200*	7.730000*	0.005000U
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
01-87	04/11/88	1	DRY						
51-87	02/12/88	1	DRY						
52-87	02/12/88	1	25.0742	0.7556	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.010000U	13.40000	0.159000*	0.010000U	0.100000U	0.050000U	0.141000*
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
01-87	04/11/88	1	DRY						
51-87	02/12/88	1	DRY						
52-87	02/12/88	1	..	166.3747	0.8222	..	NR	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX B-1.3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELL COMPLETED IN

ROCKY FLATS ALLUVIUM

INORGANICS

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			352.0000	15.60000	2.980000	45.10000	436.0000
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
01-87	04/11/88	1	DRY				
51-87	02/12/88	1	DRY				
52-87	02/12/88	1	814	67.3	..	186	502

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			5.000000	8.600000	0.003800
01-87	02/10/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS		
01-87	04/11/88	1	DRY		
51-87	02/12/88	1	DRY		
52-87	02/12/88	1	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX B-1.4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

ROCKY FLATS ALLUVIUM

DISSOLVED RADIOCHEMISTRY

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			12.54300		14.57000		1.647000		0.000000	
01-87	02/10/88	1	15 ± 11		15 ± 30		8.4 ± 0.7		0.34 ± 0.11	
01-87	04/11/88	1	DRY							
51-87	02/12/88	1	DRY							
52-87	02/12/88	1	40 ± 16		17 ± 23		4.7 ± 0.7		0.19 ± 0.12	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			0.195000		0.552000		0.009000		0.000000	
01-87	02/10/88	1	5.5 ± 0.5		NR		..		0.03 ± 0.25	
01-87	04/11/88	1	DRY							
51-87	02/12/88	1	DRY							
52-87	02/12/88	1	4.0 ± 0.6		NR		..		..	

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE ROCKY FLATS ALLUVIUM

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			0.603000		309.1490	
01-87	02/10/88	1	NR		NR	
01-87	04/11/88	1	DRY			
51-87	02/12/88	1	DRY			
52-87	02/12/88	1	NR		..	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX B-2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

COLLUVIUM

APPENDIX B-2.1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

COLLUVIUM

VOLATILE ORGANICS

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
09-74	01/25/89	1	10 U	10 U	10 U R	10 U	5 U	10 U	5 U
09-74	04/24/89	2	10 U	10 U	10 U	10 U	5 J	10 U R	5 U
10-74	01/16/89	1	10 U R	10 U R	10 U	10 U	6 U	10 U	5 U
10-74	04/24/89	2	10 U	10 U	10 U	10 U	5 J	10 U R	5 U
63-86	01/18/89	1	DRY						
63-86	04/13/89	2	DRY						
69-86	01/12/89	1	10 U R	10 U R	10 U	10 U R	5 U	10 U	5 U
69-86	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
02-87	01/12/89	1	10 U R	10 U R	10 U	10 U R	5 U	10 U	5 U
02-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
02-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
04-87	01/12/89	1	10 U R	10 U R	10 U	10 U R	8 U	10 U	5 U
04-87	01/12/89	1	10 U R	10 U R	10 U	10 U R	5 U	10 U	5 U
04-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
09-74	01/25/89	1	5300	180 J	NR	5 U	5 U	17 J	10 U R
09-74	04/24/89	2	6600 J	14 J	NR	5 U	5 U	17 J	10 U
10-74	01/16/89	1	5 U	5 U	NR	5 U	22 U	5 U	10 U R
10-74	04/24/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
63-86	01/18/89	1	DRY						
63-86	04/13/89	2	DRY						
69-86	01/12/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
69-86	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
02-87	01/12/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
02-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
02-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
04-87	01/12/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
04-87	01/12/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
04-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
09-74	01/25/89	1	10000	5 U	10 U	5 U	5 U	5 U	7900
09-74	04/24/89	2	5700 J	5 U	10 U R	5 U	5 U	5 U	6500 J
10-74	01/16/89	1	5 U	660E U	10 U	5 U	5 U	5 U	410E U
10-74	04/24/89	2	8 J	2400 J	10 U R	5 U	5 U	5 U	1200 J
63-86	01/18/89	1	DRY						
63-86	04/13/89	2	DRY						
69-86	01/12/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
69-86	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
02-87	01/12/89	1	5 U	5 U	10 U	5 U	5 U	5 U	2 J
02-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
02-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
04-87	01/12/89	1	5 U	11 J	10 U	5 U	5 U	5 U	98
04-87	01/12/89	1	5 U	11 J	10 U	5 U	5 U	5 U	99
04-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	110 J

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
09-74	01/25/89	1	5 U	39 J	5 U	5 U	NR	5 U	10 U
09-74	04/24/89	2	5 U	47 J	5 U	5 U	NR	5 U	10 U
10-74	01/16/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
10-74	04/24/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
63-86	01/18/89	1	DRY						
63-86	04/13/89	2	DRY						
69-86	01/12/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
69-86	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
02-87	01/12/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
02-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
02-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
04-87	01/12/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
04-87	01/12/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
04-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
09-74	01/25/89	1	10 U	780E	5 U	5 U	5 U	5 U	5 U
09-74	04/24/89	2	10 U	2800 J	5 J	5 J	5 U	5 U	5 U
10-74	01/16/89	1	10 U	2 J	5 U	5 U	5 U	5 U	5 U
10-74	04/24/89	2	10 U	17 J	5 U	5 J	5 U	5 U	5 U
63-86	01/18/89	1	DRY						
63-86	04/13/89	2	DRY						
69-86	01/12/89	1	10 U	5 U	5 U	5 U	5 U	5 U	5 U
69-86	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
02-87	01/12/89	1	10 U	35 J	5 U	5 U	5 U	5 U	5 U
02-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
02-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
04-87	01/12/89	1	10 U	5 J	5 U	5 U	5 U	5 U	5 U
04-87	01/12/89	1	10 U	5 J	5 U	5 U	5 U	5 U	5 U
04-87	04/17/89	2	10 U	6 J	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
09-74	01/25/89	1	5 U
09-74	04/24/89	2	5 U
10-74	01/16/89	1	5 U
10-74	04/24/89	2	5 U
63-86	01/18/89	1	DRY
63-86	04/13/89	2	DRY
69-86	01/12/89	1	5 U
69-86	04/17/89	2	5 U
02-87	01/12/89	1	5 U
02-87	04/17/89	2	5 U
02-87	04/17/89	2	5 U
04-87	01/12/89	1	5 U
04-87	01/12/89	1	5 U
04-87	04/17/89	2	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
06-87	01/18/89	1	DRY						
06-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U
43-87	01/25/89	1	10 U	10 U	10 U R	10 U	5 U	10 U	5 U
43-87	04/24/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U
44-87	01/18/89	1	DRY						
44-87	04/13/89	2	DRY						
47-87	01/18/89	1	DRY						
47-87	04/13/89	2	DRY						
48-87	01/18/89	1	DRY						
48-87	04/13/89	2	DRY						
49-87	01/18/89	1	DRY						
49-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
06-87	01/18/89	1	DRY						
06-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
43-87	01/25/89	1	6300	150 J	NR	5 U	5 U	16 J	10 U R
43-87	04/24/89	2	7900 J	110 J	NR	5 U	5 U	14 J	10 U R
44-87	01/18/89	1	DRY						
44-87	04/13/89	2	DRY						
47-87	01/18/89	1	DRY						
47-87	04/13/89	2	DRY						
48-87	01/18/89	1	DRY						
48-87	04/13/89	2	DRY						
49-87	01/18/89	1	DRY						
49-87	04/13/89	2	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
06-87	01/18/89	1	DRY						
06-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
43-87	01/25/89	1	15000	5 U	10 U	5 U	5 U	5 U	11000
43-87	04/24/89	2	9000 J	5 U	10 U R	5 U	5 U	5 U	8500 J
44-87	01/18/89	1	DRY						
44-87	04/13/89	2	DRY						
47-87	01/18/89	1	DRY						
47-87	04/13/89	2	DRY						
48-87	01/18/89	1	DRY						
48-87	04/13/89	2	DRY						
49-87	01/18/89	1	DRY						
49-87	04/13/89	2	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
06-87	01/18/89	1	DRY						
06-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
43-87	01/25/89	1	5 U	29 J	5 U	5 U	NR	5 U	10 U
43-87	04/24/89	2	5 U	44 J	5 U	5 U	NR	5 U	10 U
44-87	01/18/89	1	DRY						
44-87	04/13/89	2	DRY						
47-87	01/18/89	1	DRY						
47-87	04/13/89	2	DRY						
48-87	01/18/89	1	DRY						
48-87	04/13/89	2	DRY						
49-87	01/18/89	1	DRY						
49-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
06-87	01/18/89	1	DRY						
06-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
43-87	01/25/89	1	10 U	3400 J	5 U	5 U	5 U	5 U	5 U
43-87	04/24/89	2	10 U	5900 J	5 U	5 U	5 U	5 J	5 U
44-87	01/18/89	1	DRY						
44-87	04/13/89	2	DRY						
47-87	01/18/89	1	DRY						
47-87	04/13/89	2	DRY						
48-87	01/18/89	1	DRY						
48-87	04/13/89	2	DRY						
49-87	01/18/89	1	DRY						
49-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
06-87	01/18/89	1	DRY
06-87	04/17/89	2	5 U
43-87	01/25/89	1	5 U
43-87	04/24/89	2	5 U
44-87	01/18/89	1	DRY
44-87	04/13/89	2	DRY
47-87	01/18/89	1	DRY
47-87	04/13/89	2	DRY
48-87	01/18/89	1	DRY
48-87	04/13/89	2	DRY
49-87	01/18/89	1	DRY
49-87	04/13/89	2	DRY

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
50-87	01/18/89	1	DRY						
50-87	04/13/89	2	DRY						
53-87	01/18/89	1	DRY						
53-87	04/13/89	2	DRY						
54-87	01/18/89	1	DRY						
54-87	04/13/89	2	DRY						
16-89	05/16/89	1	DRY						
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
14-89BR	05/11/89	1	DRY						
14-89BR	07/21/89	2	DRY						
59-86R	06/06/89	2	10 U	10 U	10 U	10 U	5 U	57 B	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
50-87	01/18/89	1	DRY						
50-87	04/13/89	2	DRY						
53-87	01/18/89	1	DRY						
53-87	04/13/89	2	DRY						
54-87	01/18/89	1	DRY						
54-87	04/13/89	2	DRY						
16-89	05/16/89	1	DRY						
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
14-89BR	05/11/89	1	DRY						
14-89BR	07/21/89	2	DRY						
59-86R	06/06/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
50-87	01/18/89	1	DRY						
50-87	04/13/89	2	DRY						
53-87	01/18/89	1	DRY						
53-87	04/13/89	2	DRY						
54-87	01/18/89	1	DRY						
54-87	04/13/89	2	DRY						
16-89	05/16/89	1	DRY						
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
14-89BR	05/11/89	1	DRY						
14-89BR	07/21/89	2	DRY						
59-86R	06/06/89	2	5 U	5 U	10 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
50-87	01/18/89	1	DRY						
50-87	04/13/89	2	DRY						
53-87	01/18/89	1	DRY						
53-87	04/13/89	2	DRY						
54-87	01/18/89	1	DRY						
54-87	04/13/89	2	DRY						
16-89	05/16/89	1	DRY						
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
14-89BR	05/11/89	1	DRY						
14-89BR	07/21/89	2	DRY						
59-86R	06/06/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
50-87	01/18/89	1	DRY						
50-87	04/13/89	2	DRY						
53-87	01/18/89	1	DRY						
53-87	04/13/89	2	DRY						
54-87	01/18/89	1	DRY						
54-87	04/13/89	2	DRY						
16-89	05/16/89	1	DRY						
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
14-89BR	05/11/89	1	DRY						
14-89BR	07/21/89	2	DRY						
59-86R	06/06/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
50-87	01/18/89	1	DRY
50-87	04/13/89	2	DRY
53-87	01/18/89	1	DRY
53-87	04/13/89	2	DRY
54-87	01/18/89	1	DRY
54-87	04/13/89	2	DRY
16-89	05/16/89	1	DRY
16-89	07/21/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS
14-89BR	05/11/89	1	DRY
14-89BR	07/21/89	2	DRY
59-86R	06/06/89	2	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

APPENDIX B-2.2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

COLLUVIUM

DISSOLVED METALS

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.200000U	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	76.80000*
09-74	02/25/88	1	..	..	..	..	..	..	168.2300
10-74	02/25/88	1	..	..	..	..	..	..	221.8247
63-86	02/17/88	1	DRY						
69-86	02/10/88	1	..	..	..	..	..	..	147.3161
02-87	02/10/88	1	..	..	..	..	..	..	..
04-87	02/15/88	1	..	..	..	..	..	..	229.9842
06-87	02/17/88	1	..	..	..	..	..	..	156.2052

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			1.000000U	0.010000U	0.050000U	0.025000U	0.100000U	0.005000U	0.172000*
09-74	02/25/88	1	..	..	..	..	..	..	0.44
10-74	02/25/88	1	..	0.0118	..	..	..	..	..
63-86	02/17/88	1	DRY						
69-86	02/10/88	1	..	0.0110	..	..	..	..	..
02-87	02/10/88	1	..	..	..	..	..	..	..
04-87	02/15/88	1	..	0.0114	..	..	..	..	..
06-87	02/17/88	1	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			15.30000*	0.088000*	0.000200U	0.010000U	0.040000U	5.000000U	0.005000U
09-74	02/25/88	1	33.0280	..	..	..	..	..	0.65
10-74	02/25/88	1	55.9821	..	..	..	..	..	1.94
63-86	02/17/88	1	DRY						
69-86	02/10/88	1	44.1781	..	..	..	..	..	0.082
02-87	02/10/88	1	17.0658	0.3739	..	..	..	..	..
04-87	02/15/88	1	52.0792	0.3658	..	..	0.2025	..	0.22
06-87	02/17/88	1	48.0232	0.2698	..	..	0.2847	..	0.015

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.010000U	98.70000*	1.000000U	0.010000U	0.100000U	0.050000U	0.020000U
09-74	02/25/88	1	..	169.7297	1.2577	..	NR	..	..
10-74	02/25/88	1	..	178.2349	1.7584	..	NR	..	0.0851
63-86	02/17/88	1	DRY						
69-86	02/10/88	1	..	134.3162	1.1063	..	NR	..	0.0238
02-87	02/10/88	1	..	123.2256	..	..	NR	..	0.0261
04-87	02/15/88	1	..	265.3521	1.6772	..	NR	..	0.0359
06-87	02/17/88	1	..	218.7943	1.5303	..	NR	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.200000U	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	76.80000*
43-87	02/22/88	1	..	..	..	..	..	..	168.2474
44-87	02/22/88	1	DRY						
47-87	02/15/88	1	DRY						
48-87	02/15/88	1	..	..	..	0.3110	..	..	299.3337
49-87	02/17/88	1	DRY						
50-87	02/17/88	1	DRY						
53-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			1.000000U	0.010000U	0.050000U	0.025000U	0.100000U	0.005000U	0.172000*
43-87	02/22/88	1	..	..	..	0.9515	..	..	..
44-87	02/22/88	1	DRY						
47-87	02/15/88	1	DRY						
48-87	02/15/88	1	..	..	..	0.3270	..	..	..
49-87	02/17/88	1	DRY						
50-87	02/17/88	1	DRY						
53-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			15.30000*	0.088000*	0.000200U	0.010000U	0.040000U	5.000000U	0.005000U
43-87	02/22/88	1	35.2978	0.0918	..	..	0.6079	5.5	0.5
44-87	02/22/88	1	DRY						
47-87	02/15/88	1	DRY						
48-87	02/15/88	1	95.5074	0.4340	..	0.0495	1.1827	7.0	0.033
49-87	02/17/88	1	DRY						
50-87	02/17/88	1	DRY						
53-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.010000U	98.70000*	1.000000U	0.010000U	0.100000U	0.050000U	0.020000U
43-87	02/22/88	1	..	191.2084	1.4910	..	NR	..	2.1306
44-87	02/22/88	1	DRY						
47-87	02/15/88	1	DRY						
48-87	02/15/88	1	..	211.3462	2.9066	..	NR	..	2.4559
49-87	02/17/88	1	DRY						
50-87	02/17/88	1	DRY						
53-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.200000U	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	76.80000*
54-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			1.000000U	0.010000U	0.050000U	0.025000U	0.100000U	0.005000U	0.172000*
54-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results
for Ground-Water Monitoring Wells at Operable Unit No. 1
Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			15.30000*	0.088000*	0.000200U	0.010000U	0.040000U	5.000000U	0.005000U
54-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results
for Ground-Water Monitoring Wells at Operable Unit No. 1
Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.010000U	98.70000*	1.000000U	0.010000U	0.100000U	0.050000U	0.020000U
54-87	02/10/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX B-2.3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

COLLUVIUM

INORGANICS

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			520.0000	20.00000	0.180000	86.00000	470.0000
09-74	02/25/88	1	1253	250	8.67	230	..
10-74	02/25/88	1	1646	314	36.7	311	..
63-86	02/17/88	1	DRY				
69-86	02/10/88	1	997	113	1.66	260	..
02-87	02/10/88	1	558	73.0	..	..	..
04-87	02/15/88	1	1756	313	2.60	500	..
06-87	02/17/88	1	1430	332	..	285	..
43-87	02/22/88	1	1770	259	3.00	243	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			5.000000	7.400000	0.002500
09-74	02/25/88	1	NR	NR	NR
10-74	02/25/88	1	NR	NR	NR
63-86	02/17/88	1	DRY		
69-86	02/10/88	1	NR	NR	NR
02-87	02/10/88	1	NR	NR	NR
04-87	02/15/88	1	NR	NR	NR
06-87	02/17/88	1	NR	NR	NR
43-87	02/22/88	1	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			520.0000	20.00000	0.180000	86.00000	470.0000
44-87	02/22/88	1	DRY				
47-87	02/15/88	1	DRY				
48-87	02/15/88	1	2081	838	0.32	218	..
49-87	02/17/88	1	DRY				
50-87	02/17/88	1	DRY				
53-87	02/10/88	1	DRY				
54-87	02/10/88	1	DRY				

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			5.000000	7.400000	0.002500
44-87	02/22/88	1	DRY		
47-87	02/15/88	1	DRY		
48-87	02/15/88	1	NR	NR	NR
49-87	02/17/88	1	DRY		
50-87	02/17/88	1	DRY		
53-87	02/10/88	1	DRY		
54-87	02/10/88	1	DRY		

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX B-2.4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

COLLUVIUM

DISSOLVED RADIOCHEMISTRY

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			27.00000*		12.00000*		11.00000*		0.300000*	
09-74	02/25/88	1	..		14 ± 27		15 ± 2		0.53 ± 0.16	
10-74	02/25/88	1	..		..		..		0.37 ± 0.12	
63-86	02/17/88	1	DRY							
69-86	02/10/88	1	..		..		..		0.65 ± 0.46	
02-87	02/10/88	1	..		..		..		..	
04-87	02/15/88	1	50 ± 13		16 ± 13		19 ± 2		1.1 ± 0.2	
06-87	02/17/88	1	48 ± 10		25 ± 13		28 ± 3		0.93 ± 0.23	
43-87	02/22/88	1	29 ± 14		14 ± 24		20 ± 3		4.3 ± 0.9	
44-87	02/22/88	1	DRY							
47-87	02/15/88	1	DRY							
48-87	02/15/88	1	..		..		..		..	

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			7.700000*		0.100000*		0.000000*		0.000000*	
09-74	02/25/88	1	11 ± 1		NR		..		NR	
10-74	02/25/88	1	..		NR		..		NR	
63-86	02/17/88	1	DRY							
69-86	02/10/88	1	8.1 ± 2.2		NR		0.02 ± 0.21		..	
02-87	02/10/88	1	..		NR		0.13 ± 0.12		..	
04-87	02/15/88	1	15 ± 2		NR		..		..	
06-87	02/17/88	1	24 ± 3		NR		..		..	
43-87	02/22/88	1	20 ± 3		NR		..		NR	
44-87	02/22/88	1	DRY							
47-87	02/15/88	1	DRY							
48-87	02/15/88	1	..		NR		..		..	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			0.200000*		100.0000*	
09-74	02/25/88	1	NR		..	
10-74	02/25/88	1	NR		..	
63-86	02/17/88	1	DRY			
69-86	02/10/88	1	NR		..	
02-87	02/10/88	1	NR		..	
04-87	02/15/88	1	NR		..	
06-87	02/17/88	1	NR		..	
43-87	02/22/88	1	NR		..	
44-87	02/22/88	1	DRY			
47-87	02/15/88	1	DRY			
48-87	02/15/88	1	NR		..	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
1 = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			27.00000*		12.00000*		11.00000*		0.300000*	
49-87	02/17/88	1	DRY							
50-87	02/17/88	1	DRY							
53-87	02/10/88	1	DRY							
54-87	02/10/88	1	DRY							

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			7.700000*		0.100000*		0.000000*		0.000000*	
49-87	02/17/88	1	DRY							
50-87	02/17/88	1	DRY							
53-87	02/10/88	1	DRY							
54-87	02/10/88	1	DRY							

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE COLLUVIUM

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			0.200000*		100.0000*	
49-87	02/17/88	1	DRY			
50-87	02/17/88	1	DRY			
53-87	02/10/88	1	DRY			
54-87	02/10/88	1	DRY			

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX B-3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

VALLEY FILL ALLUVIUM

APPENDIX B-3.1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

VALLEY FILL ALLUVIUM

VOLATILE ORGANICS

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
58-86	01/18/89	1	DRY						
58-86	04/13/89	2	DRY						
64-86	01/18/89	1	DRY						
64-86	04/24/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U
68-86	01/18/89	1	DRY						
68-86	04/13/89	2	DRY						
55-87	01/18/89	1	DRY						
55-87	04/13/89	2	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
58-86	01/18/89	1	DRY						
58-86	04/13/89	2	DRY						
64-86	01/18/89	1	DRY						
64-86	04/24/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
68-86	01/18/89	1	DRY						
68-86	04/13/89	2	DRY						
55-87	01/18/89	1	DRY						
55-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
58-86	01/18/89	1	DRY						
58-86	04/13/89	2	DRY						
64-86	01/18/89	1	DRY						
64-86	04/24/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
68-86	01/18/89	1	DRY						
68-86	04/13/89	2	DRY						
55-87	01/18/89	1	DRY						
55-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
58-86	01/18/89	1	DRY						
58-86	04/13/89	2	DRY						
64-86	01/18/89	1	DRY						
64-86	04/24/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
68-86	01/18/89	1	DRY						
68-86	04/13/89	2	DRY						
55-87	01/18/89	1	DRY						
55-87	04/13/89	2	DRY						

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
58-86	01/18/89	1	DRY						
58-86	04/13/89	2	DRY						
64-86	01/18/89	1	DRY						
64-86	04/24/89	2	10 U	8 J	5 U	5 U	5 U	5 U	5 U
68-86	01/18/89	1	DRY						
68-86	04/13/89	2	DRY						
55-87	01/18/89	1	DRY						
55-87	04/13/89	2	DRY						

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
58-86	01/18/89	1	DRY
58-86	04/13/89	2	DRY
64-86	01/18/89	1	DRY
64-86	04/24/89	2	5 U
68-86	01/18/89	1	DRY
68-86	04/13/89	2	DRY
55-87	01/18/89	1	DRY
55-87	04/13/89	2	DRY

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

APPENDIX B-3.2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

VALLEY FILL ALLUVIUM

DISSOLVED METALS

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.200000U	0.600000U	0.100000U	0.200000U	0.005000U	0.005000U	138.0000
58-86	02/15/88	1	DRY						
64-86	02/17/88	1	..	..	..	..	..	..	..
68-86	02/15/88	1	DRY						
55-87	02/15/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			1.000000U	0.010000U	0.050000U	0.025000U	0.944000*	0.005000U	0.028000
58-86	02/15/88	1	DRY						
64-86	02/17/88	1	..	..	..	..	..	..	0.05 J
68-86	02/15/88	1	DRY						
55-87	02/15/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			26.57000	0.686000*	0.000300*	0.010000U	0.040000U	5.000000U	0.011400*
58-86	02/15/88	1	DRY						
64-86	02/17/88	1	..	..	..	0.0234	0.0492	..	..
68-86	02/15/88	1	DRY						
55-87	02/15/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results
for Ground-Water Monitoring Wells at Operable Unit No. 1
Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.010000U	88.00000	1.000000U	0.040000U	0.100000U	0.050000U	0.021200*
58-86	02/15/88	1	DRY						
64-86	02/17/88	1	..	105.6913	..	..	NR	..	..
68-86	02/15/88	1	DRY						
55-87	02/15/88	1	DRY						

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX B-3.3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

VALLEY FILL ALLUVIUM

INORGANICS

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			947.0000	40.29000	0.690000	150.0000	719.0000
58-86	02/15/88	1	DRY				
64-86	02/17/88	1	..	54.1	..	168	..
68-86	02/15/88	1	DRY				
55-87	02/15/88	1	DRY				

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			5.000000	8.680000	0.002500
58-86	02/15/88	1	DRY		
64-86	02/17/88	1	NR	NR	NR
68-86	02/15/88	1	DRY		
55-87	02/15/88	1	DRY		

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX B-3.4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

VALLEY FILL ALLUVIUM

DISSOLVED RADIOCHEMISTRY

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			13.51500		18.53000		6.481000		0.232000	
58-86	02/15/88	1	DRY							
64-86	02/17/88	1	..		..		..		..	
68-86	02/15/88	1	DRY							
55-87	02/15/88	1	DRY							

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
/ = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			5.084000		0.878000		0.012000		0.012000	
58-86	02/15/88	1	DRY							
64-86	02/17/88	1	..		NR		..		..	
68-86	02/15/88	1	DRY							
55-87	02/15/88	1	DRY							

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE VALLEY FILL ALLUVIUM

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			0.776000		505.1110	
58-86	02/15/88	1	DRY			
64-86	02/17/88	1	NR		..	
68-86	02/15/88	1	DRY			
55-87	02/15/88	1	DRY			

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX B-4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

WEATHERED SANDSTONE

APPENDIX B-4.1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

FOR WELLS COMPLETED IN

WEATHERED SANDSTONE

VOLATILE ORGANICS

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
59-86	01/18/89	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS
59-86	04/13/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS
62-86	01/23/89	1	5 U
62-86	04/17/89	2	5 U
05-87	01/16/89	1	5 U
05-87	04/12/89	2	5 U
05-87	04/12/89	2	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
59-86	01/18/89	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
59-86	04/13/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
62-86	01/23/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
62-86	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
05-87	01/16/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
05-87	04/12/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
05-87	04/12/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
59-86	01/18/89	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
59-86	04/13/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
62-86	01/23/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
62-86	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
05-87	01/16/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
05-87	04/12/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
05-87	04/12/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

APPENDIX B-4.2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

WEATHERED SANDSTONE

DISSOLVED METALS

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.200000U	0.060000U	0.010000*	0.200000U	0.005000U	0.005000U	65.70000*
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
62-86	02/17/88	1	..	..	..	..	..	..	..
05-87	02/22/88	1	..	..	..	..	..	..	133.7485

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			1.000000U	0.012200*	0.050000U	0.025000U	0.100000U	0.005000U	0.010600*
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
62-86	02/17/88	1	..	0.0216	..	..	..	..	..
05-87	02/22/88	1	..	0.0128	..	..	..	..	0.25

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			9.410000*	0.292000*	0.000200U	0.015000*	0.040000U	5.000000U	0.005000U
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
62-86	02/17/88	1	9.9492	..	..	..	0.0539	5.9	0.062
05-87	02/22/88	1	10.9588	..	..	..	..	5.5	0.23

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.010000U	25.60000*	1.000000U	0.010000U	0.100000U	0.050000U	0.020000U
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR METALS ANALYSIS						
62-86	02/17/88	1	..	49.7036	..	..	NR	..	..
05-87	02/22/88	1	..	83.9007	1.6856	..	NR	..	0.0223

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX B-4.3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

WEATHERED SANDSTONE

INORGANICS

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			220.0000	15.00000	1.600000	48.00000	230.0000
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS				
62-86	02/17/88	1	275	29.7	..	..	..
05-87	02/22/88	1	1170	267	8.70	485	311

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			5.000000	7.500000	0.002500
59-86	02/15/88	1	INSUFFICIENT SAMPLE FOR INORGANIC ANALYSIS		
62-86	02/17/88	1	NR	NR	NR
05-87	02/22/88	1	NR	NR	NR

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX B-4.4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

WEATHERED SANDSTONE

DISSOLVED RADIOCHEMISTRY

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
59-86	01/18/89	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
59-86	04/13/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
62-86	01/23/89	1	10 U R	10 U	10 U R	10 U	5 U	10 U	5 U
62-86	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U
05-87	01/16/89	1	10 U R	10 U R	10 U	10 U	5 U	10 U	5 U
05-87	04/12/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
05-87	04/12/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
59-86	01/18/89	1	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
59-86	04/13/89	2	INSUFFICIENT SAMPLE FOR VOLATILE ORGANIC ANALYSIS						
62-86	01/23/89	1	5 U	2 J	10 U	5 U	5 U	5 U	5 U
62-86	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
05-87	01/16/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
05-87	04/12/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
05-87	04/12/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			7.000000*		2.000000*		1.100000*		0.000000*	
59-86	02/15/88	1	***							
62-86	02/17/88	1	14 ± 5		..		..		..	
05-87	02/22/88	1	23 ± 14		14 ± 25		14 ± 1		0.77 ± 0.16	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			0.600000*		-.100000*		0.010000*		0.010000*	
59-86	02/15/88	1	***							
62-86	02/17/88	1	..		NR		..		..	
05-87	02/22/88	1	9 ± 1		NR		..		NR	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE WEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			0.300000*		100.0000*	
59-86	02/15/88	1	***			
62-86	02/17/88	1	NR		..	
05-87	02/22/88	1	NR		..	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX B-5

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

UNWEATHERED SANDSTONE

APPENDIX B-5.1

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

UNWEATHERED SANDSTONE

VOLATILE ORGANICS

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
03-87	01/23/89	1	10 U R	10 U	10 U R	10 U	7 U	10 U	5 U
03-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U
45-87	01/23/89	1	10 U R	10 U	10 U R	10 U	5 U	10 U	5 U
45-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U R	5 U
08-87	01/23/89	1	10 U R	10 U	10 U R	10 U	5 U	10 U	5 U
08-87	04/17/89	2	10 U	10 U	10 U	10 U	5 U	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
03-87	01/23/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
03-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
45-87	01/23/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
45-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U
08-87	01/23/89	1	5 U	5 U	NR	5 U	5 U	5 U	10 U R
08-87	04/17/89	2	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
03-87	01/23/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
03-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
45-87	01/23/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
45-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U
08-87	01/23/89	1	5 U	5 U	10 U	5 U	5 U	5 U	5 U
08-87	04/17/89	2	5 U	5 U	10 U R	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3-Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl-2-penta none ug/l
03-87	01/23/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
03-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
45-87	01/23/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
45-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U
08-87	01/23/89	1	5 U	5 U	5 U	5 U	NR	5 U	10 U
08-87	04/17/89	2	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
03-87	01/23/89	1	10 U	5 U	5 U	5 U	5 U	5 U	5 U
03-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
45-87	01/23/89	1	10 U	5 U	5 U	5 U	5 U	5 U	5 U
45-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U
08-87	01/23/89	1	10 U	5 U	5 U	5 U	5 U	5 U	5 U
08-87	04/17/89	2	10 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range
R = Data rejected during validation.

1989 Volatile Organic Results

For Ground-Water Monitoring Wells at Operable Unit No. 1

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Total Xylenes ug/l
03-87	01/23/89	1	5 U
03-87	04/17/89	2	5 U
45-87	01/23/89	1	5 U
45-87	04/17/89	2	5 U
08-87	01/23/89	1	5 U
08-87	04/17/89	2	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value
R = Data rejected during validation.

APPENDIX B-5.2

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

UNWEATHERED SANDSTONE

DISSOLVED METALS

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.327000	0.000000	0.018600	0.000000	0.000000	0.000000	64.60000
03-87	02/22/88	1	..	..	..	0.0844	..	..	..
45-87	02/25/88	1	..	..	..	0.0829	..	..	..
08-87	02/22/88	1	..	..	..	0.0343	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
03-87	02/22/88	1	..	..	..	..	..	..	..
45-87	02/25/88	1	..	..	..	0.0063	0.0286	..	0.06 J
08-87	02/22/88	1	..	..	..	..	..	..	0.13

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Lim. of T. Interval Round 1, 1989			0.000000	0.018200	0.000000	0.112000	0.000000	21.89000	0.041000
03-87	02/22/88	1	6.5787	0.0280	..	..	..	..	..
45-87	02/25/88	1	5.2957	0.1277	..	..	..	30	..
08-87	02/22/88	1	35.7328	0.0711	..	..	0.0429	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

First Quarter 1988 Dissolved Metals Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than the Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Lim. of T. Interval									
Round 1, 1989			0.000000	599.0000	0.451000	0.000000	0.000000	0.000000	0.564000
03-87	02/22/88	1	..	..	..	..	NR	..	..
45-87	02/25/88	1	0.00764	..	..	..	NR	..	..
08-87	02/22/88	1	..	..	1.7680	..	NR	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX B-5.3

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

UNWEATHERED SANDSTONE

INORGANICS

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval							
Round 1, 1989			1761.000	607.0000	0.610000	950.0000	412.0000
03-87	02/22/88	1	..	..	..	..	..
45-87	02/25/88	1	..	..	..	..	..
08-87	02/22/88	1	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

First Quarter Inorganics Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval					
Round 1, 1989			49.00000	10.57000	0.000000
03-87	02/22/88	1	NR	NR	NR
45-87	02/25/88	1	NR	NR	NR
08-87	02/22/88	1	NR	NR	NR

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX B-5.4

OPERABLE UNIT NO. 1

GROUND-WATER SAMPLING RESULTS

UNWEATHERED SANDSTONE

DISSOLVED RADIOCHEMISTRY

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Gross Alpha PCI/L	(MDA)	Gross Beta PCI/L	(MDA)	Uranium 233, 234 PCI/L	(MDA)	Uranium 235 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			34.62700		37.69500		12.93600		0.135000	
03-87	02/22/88	1	..		..		..		..	
45-87	02/25/88	1	..		..		..		..	
08-87	02/22/88	1	..		..		..		0.37 ± 0.26	

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval ! = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Uranium 238 PCI/L	(MDA)	Strontium 89, 90 PCI/L	(MDA)	Plutonium 239, 240 PCI/L	(MDA)	Americium 241 PCI/L	(MDA)
Upper Limit of Tolerance Interval										
Round 1 1989			3.350700		0.707000		0.000000		0.019000	
03-87	02/22/88	1	..		NR		..		NR	
45-87	02/25/88	1	..		NR		..		NR	
08-87	02/22/88	1	..		NR		..		NR	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

First Quarter 1988 Dissolved Radiochemistry Results for Ground-Water Monitoring Wells at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*.

881-HILLSIDE UNWEATHERED SANDSTONE

Well Number	Date Sampled	Qtr.	Cesium 137 PCI/L	(MDA)	Tritium PCI/L	(MDA)
Upper Limit of Tolerance Interval						
Round 1 1989			1.276000		731.8760	
03-87	02/22/88	1	NR		..	
45-87	02/25/88	1	NR		..	
08-87	02/22/88	1	NR		..	

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

APPENDIX C

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

APPENDIX C-1

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

VOLATILE ORGANICS

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
SW-031	06/27/89	10 U	10 U	10 U	10 U	5 U	10 U	5 U
SW-044	06/21/89	10 U	10 U	10 U	10 U	10 B	14 B	5 U
SW-045	06/21/89	10 U	10 U	10 U	10 U	13 B	10 U	5 U
SW-046	06/21/89	10 U	10 U	10 U	10 U	5 U	10 U	5 U
SW-066	06/23/89	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
SW-067	06/23/89	10 U	10 U	10 U	10 U	3 JB	2 J	5 U
SW-068	06/23/89	10 U	10 U	10 U	10 U	4 JB	10 U	5 U
SW-069	06/23/89	10 U	10 U	10 U	10 U	3 JB	2 J	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
SW-031	06/27/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-044	06/21/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-045	06/21/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-046	06/21/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-066	06/23/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-067	06/23/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-068	06/23/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SW-069	06/23/89	5 U	5 U	NR	5 U	1 J	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di-chloro propane ug/l	Cis-1,3-Dichloro propene ug/l	Trichloro ethene ug/l
SW-031	06/27/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-044	06/21/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-045	06/21/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-046	06/21/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-066	06/23/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-067	06/23/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-068	06/23/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SW-069	06/23/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
SW-031	06/27/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-044	06/21/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-045	06/21/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-046	06/21/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-066	06/23/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-067	06/23/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-068	06/23/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SW-069	06/23/89	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
SW-031	06/27/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-044	06/21/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-045	06/21/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-046	06/21/89	10 U	2 J	5 U	5 U	5 U	5 U	5 U
SW-066	06/23/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-067	06/23/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-068	06/23/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U
SW-069	06/23/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Total Xylenes ug/l
SW-031	06/27/89	5 U
SW-044	06/21/89	5 U
SW-045	06/21/89	5 U
SW-046	06/21/89	5 U
SW-066	06/23/89	5 U
SW-067	06/23/89	5 U
SW-068	06/23/89	5 U
SW-069	06/23/89	5 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Chloro methane ug/l	Bromo methane ug/l	Vinyl Chloride ug/l	Chloro ethane ug/l	Methylene Chloride ug/l	Acetone ug/l	Carbon Disulfide ug/l
SW-070	06/23/89	10 U	10 U	10 U	10 U	3 JB	10 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	1,1-Di-chloro ethene ug/l	1,1-Di-chloro ethane ug/l	Trans-1,2-Dichloro ethene ug/l	Total-1,2-Dichloro ethene ug/l	Chloroform ug/l	1,2-Di-chloro ethane ug/l	2-Butanone ug/l
SW-070	06/23/89	5 U	5 U	NR	5 U	5 U	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	1,1,1-Tri chloro ethane ug/l	Carbon Tetra chloride ug/l	Vinyl Acetate ug/l	Bromo dichloro methane ug/l	1,2-Di- chloro propane ug/l	Cis-1,3- Dichloro propene ug/l	Trichloro ethene ug/l
SW-070	06/23/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Dibromo chloro methane ug/l	1,1,2-Tri chloro ethane ug/l	Benzene ug/l	Trans-1,3- Dichloro propene ug/l	2-Chloro ethylvinyl ether ug/l	Bromoform ug/l	4-Methyl- 2-penta none ug/l
SW-070	06/23/89	5 U	5 U	5 U	5 U	NR	5 U	10 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	2-Hexanone ug/l	Tetra chloro ethene ug/l	1,1,2,2-Tetrachloro ethane ug/l	Toluene ug/l	Chloro benzene ug/l	Ethyl benzene ug/l	Styrene ug/l
SW-070	06/23/89	10 U	5 U	5 U	5 U	5 U	5 U	5 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

1989 Volatile Organic Results for

Surface Water Stations at Operable Unit No. 1

881 HILLSIDE

Station Number	Date Sampled	Total Xylenes ug/l	
SW-070	06/23/89	5 U	

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

APPENDIX C-2

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

DISSOLVED METALS

Round One 1989 Dissolved Metals Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Limit of Tolerance Interval Round One - 1989		0.485000*	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	99.14000
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	..	..	..	..	..	..	..
SW-046	04/04/89	..	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	..	..	..	..	..	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		1.000000U	0.010000U	0.050000U	0.025000U	4.690000*	0.005500*	0.100000U
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	NR	.0109	..	..	..	..	..
SW-046	04/04/89	..	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	..	..	..	..	..	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		11.98000	0.826000	0.002000	0.100000U	0.040000U	5.000000U	0.005000U
SW-031	03/30/89	15	..	..	..	..	..	..
SW-044	04/03/89	13.80	..	..	..	..	..	..
SW-045	04/04/89	17.80	..	..	..	..	..	..
SW-046	04/04/89	19.20	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	15.30	..	..	..	..	..	..
SW-068	03/29/89	15.60	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		0.012500*	44.81000	0.350000	0.010000U	0.100000U	0.005000U	0.032000*
SW-031	03/30/89	..	..	.453	..	..	..	..
SW-044	04/03/89	..	..	.410	..	..	..	..
SW-045	04/04/89	..	..	..	..	..	..	..
SW-046	04/04/89	..	..	.598	..	..	..	.0362
SW-066	03/29/89	..	..	..	..	..	..	.0509
SW-067	04/04/89	..	..	.439	..	..	..	.0333
SW-068	03/29/89	..	..	.439	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Aluminum (Al), diss. mg/l	Antimony (Sb), diss. mg/l	Arsenic (As), diss. mg/l	Barium (Ba), diss. mg/l	Beryllium (Be), diss. mg/l	Cadmium (Cd), diss. mg/l	Calcium (Ca), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		0.485000*	0.060000U	0.010000U	0.200000U	0.005000U	0.005000U	99.14000
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Dissolved Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium (Cs), diss. mg/l	Chromium (Cr), diss. mg/l	Cobalt (Co), diss. mg/l	Copper (Cu), diss. mg/l	Iron (Fe), diss. mg/l	Lead (Pb), diss. mg/l	Lithium (Li), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		1.000000U	0.010000U	0.050000U	0.025000U	4.690000*	0.005500*	0.100000U
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Dissolved Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Magnesium (Mg), diss. mg/l	Manganese (Mn), diss. mg/l	Mercury (Hg), diss. mg/l	Molybdenum (Mo), diss. mg/l	Nickel (Ni), diss. mg/l	Potassium (K), diss. mg/l	Selenium (Se), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		11.98000	0.826000	0.002000	0.100000U	0.040000U	5.000000U	0.005000U
SW-069	03/29/89	15.50	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Dissolved Metals Analysis						
SW-070	03/29/89	14.80	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Dissolved Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Silver (Ag), diss. mg/l	Sodium (Na), diss. mg/l	Strontium (Sr), diss. mg/l	Thallium (Tl), diss. mg/l	Tin (Sn), diss. mg/l	Vanadium (V), diss. mg/l	Zinc (Zn), diss. mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		0.012500*	44.81000	0.350000	0.010000U	0.100000U	0.005000U	0.032000*
SW-069	03/29/89	..	..	.439	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Dissolved Metals Analysis						
SW-070	03/29/89	..	..	.435	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX C-3

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

TOTAL METALS

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Aluminum (Al), total mg/l	Antimony (Sb), total mg/l	Arsenic (As), total mg/l	Barium (Ba), total mg/l	Beryllium (Be), total mg/l	Cadmium (Cd), total mg/l	Calcium (Ca), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		64.10000*	0.060000U	0.116000*	4.490000*	0.009700*	0.069000*	254.1100
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	..	..	..	..	..	..	..
SW-046	04/04/89	..	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	..	..	..	.0173	..	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium (Cs), total mg/l	Chromium (Cr), total mg/l	Cobalt (Co), total mg/l	Copper (Cu), total mg/l	Iron (Fe), total mg/l	Lead (Pb), total mg/l	Lithium (Li), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		2.530000*	0.059800*	0.073000*	0.180000*	692.5900	0.233000*	0.100000U
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	..	..	..	..	..	..	..
SW-046	04/04/89	..	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	.0673	..	..	..	..	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Magnesium (Mg), total mg/l	Manganese (Mn), total mg/l	Mercury (Hg), total mg/l	Molybdenum (Mo), total mg/l	Nickel (Ni), total mg/l	Potassium (K), total mg/l	Selenium (Se), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		27.71000	1.140000	0.001000	0.199000*	0.250000*	9.860000*	0.005000U
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	..	..	..	..	..	..	..
SW-046	04/04/89	..	..	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	..	..	..	..	9.88	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Silver (Ag), total mg/l	Sodium (Na), total mg/l	Strontium (Sr), total mg/l	Thallium (Tl), total mg/l	Tin (Sn), Total mg/l	Vanadium (V), total mg/l	Zinc (Zn), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		0.148000*	43.02000	1.341000	0.010000U	0.969000*	0.364000*	0.723000*
SW-031	03/30/89	..	..	..	..	..	..	..
SW-044	04/03/89	..	..	..	..	..	..	..
SW-045	04/04/89	..	43.10	..	..	..	..	..
SW-046	04/04/89	..	43.20	..	..	..	..	..
SW-066	03/29/89	..	..	..	..	..	..	..
SW-067	04/04/89	..	..	..	..	..	..	..
SW-068	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Aluminum (Al), total mg/l	Antimony (Sb), total mg/l	Arsenic (As), total mg/l	Barium (Ba), total mg/l	Beryllium (Be), total mg/l	Cadmium (Cd), total mg/l	Calcium (Ca), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		64.10000*	0.060000U	0.116000*	4.490000*	0.009700*	0.069000*	254.1100
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Total Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium (Cs), total mg/l	Chromium (Cr), total mg/l	Cobalt (Co), total mg/l	Copper (Cu), total mg/l	Iron (Fe), total mg/l	Lead (Pb), total mg/l	Lithium (Li), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		2.530000*	0.059800*	0.073000*	0.180000*	692.5900	0.233000*	0.100000U
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Total Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Magnesium (Mg), total mg/l	Manganese (Mn), total mg/l	Mercury (Hg), total mg/l	Molybdenum (Mo), total mg/l	Nickel (Ni), total mg/l	Potassium (K), total mg/l	Selenium (Se), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		27.71000	1.140000	0.001000	0.199000*	0.250000*	9.860000*	0.005000U
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Total Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Total Metals Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Silver (Ag), total mg/l	Sodium (Na), total mg/l	Strontium (Sr), total mg/l	Thallium (Tl), total mg/l	Tin (Sn), Total mg/l	Vanadium (V), total mg/l	Zinc (Zn), total mg/l
Upper Limit of Tolerance Interval								
Round One - 1989		0.148000*	43.02000	1.341000	0.010000U	0.969000*	0.364000*	0.723000*
SW-069	03/29/89	..	..	..	..	..	..	..
SW-069	04/05/89	Insufficient Sample or Analysis not requested for Total Metals Analysis						
SW-070	03/29/89	..	..	..	..	..	..	..

NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value

U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX C-4

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

INORGANICS

Round One 1989 Inorganic Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval Round One - 1989		329.5200	89.11000	2.450000	50.20000	389.7200
SW031	03/30/89	390	..	3.4	57	..
SW044	04/03/89	360	..	2.9	55	..
SW045	04/04/89	480	..	8.0	53	..
SW046	04/04/89	480	..	6.3	55	..
SW066	03/29/89	410	..	2.9	80	..
SW067	04/04/89	390	..	3.0	58	..
SW068	03/29/89	390	..	2.8	55	..
SW069	03/29/89	NR	NR	..	NR	NR

Notes: NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value
U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Inorganic Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval				
Round One - 1989		5.000000U	9.020000	0.002500U
SW031	03/30/89	..	..	..
SW044	04/03/89	6	..	..
SW045	04/04/89	..	..	..
SW046	04/04/89	..	..	..
SW066	03/29/89	..	..	..
SW067	04/04/89	..	..	..
SW068	03/29/89	..	..	..
SW069	03/29/89	NR	NR	..

Notes: NR = Analyte not reported
.. = not detected or value < tolerance interval
* When no tolerance interval, highest background value
U = Detection Limit (Analyte not detected in background)
J = Present below detection limit
B = Present in laboratory blank

Round One 1989 Inorganic Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval						
Round One - 1989		329.5200	89.11000	2.450000	50.20000	389.7200
SW069	04/05/89	..	..	NR	67	..
SW070	03/29/89	360	..	..	..	..

Notes: NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value
U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Inorganic Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	CO3= MG/L	pH pH Unit	Cyanide, Total MG/L
Upper Limit of Tolerance Interval Round One - 1989		5.000000U	9.020000	0.002500U
SW069	04/05/89	6	..	NR
SW070	03/29/89	..	..	..

Notes: NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value
U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

Round One 1989 Inorganic Results
for Surface Water Stations at Operable Unit No. 1
Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Total Dissolved Solids MG/L	Chloride MG/L	Nitrate+ Nitrite-Nitrogen MG/L	Sulfate MG/L	HCO3- MG/L
Upper Limit of Tolerance Interval Round One - 1989		329.5200	89.11000	2.450000	50.20000	389.7200
SW031	03/30/89	390	..	3.4	57	..
SW044	04/03/89	360	..	2.9	55	..
SW045	04/04/89	480	..	8.0	53	..
SW046	04/04/89	480	..	6.3	55	..
SW066	03/29/89	410	..	2.9	80	..
SW067	04/04/89	390	..	3.0	58	..
SW068	03/29/89	390	..	2.8	55	..
SW069	03/29/89	NR	NR	..	NR	NR

Notes: NR = Analyte not reported .. = not detected or value < tolerance interval * When no tolerance interval, highest background value
U = Detection Limit (Analyte not detected in background) J = Present below detection limit B = Present in laboratory blank

APPENDIX C-5

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

DISSOLVED RADIOCHEMISTRY

Round One 1989 Dissolved Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Gross Alpha pCi/l	Gross Beta pCi/l	Uranium 233, 234 pCi/l	Uranium 235 pCi/l
Upper Limit of Tolerance Interval Round One - 1989		5.805000	9.335000	3.684000	0.364000
SW031	03/30/89	11 ± 7	..	..	..
SW044	04/03/89	7 ± 7	..	..	0.5 ± 0.2
SW045	04/04/89	16 ± 11	..	5.0 ± 0.7	..
SW046	04/04/89	6 ± 9	10 ± 4	4.4 ± 0.6	..
SW066	03/29/89	8 ± 7	..	..	..
SW067	04/04/89	10 ± 9	..	3.7 ± 0.5	..
SW068	03/29/89	8 ± 8	12 ± 4	..	..
SW069	03/29/89	7 ± 6	..	..	0.6 ± 0.2
SW069	04/05/89	***			
SW070	03/29/89	..	..	..	0.4 ± 0.1

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value

*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

Round One 1989 Dissolved Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Uranium 238 pCi/l	Strontium 89, 90 pCi/l	Plutonium 239, 240 pCi/l	Americium 241 pCi/l
Upper Limit of Tolerance Interval					
Round One - 1989		2.311000	1.452000	0.017000	0.014000
SW031	03/30/89	2.9 ± 0.4	..	..	..
SW044	04/03/89	2.5 ± 0.4	..	..	..
SW045	04/04/89	3.5 ± 0.5	..	..	..
SW046	04/04/89	3.5 ± 0.5	..	..	..
SW066	03/29/89	3.0 ± 0.5	..	..	..
SW067	04/04/89	4.5 ± 0.5	..	..	..
SW068	03/29/89	3.9 ± 0.5	..	..	..
SW069	03/29/89	3.6 ± 0.5	..	..	..
SW069	04/05/89	***			
SW070	03/29/89	3.2 ± 0.4	..	..	..

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value

*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

Round One 1989 Dissolved Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium 137 pCi/l	Tritium pCi/l	Radium 226 pCi/l	Radium 228 pCi/l
Upper Limit of Tolerance Interval					
Round One - 1989		0.591000	0.000000	0.000000	0.000000
SW031	03/30/89	..	NR	0.1 ± 0.3	NR
SW044	04/03/89	..	NR	0.1 ± 0.2	NR
SW045	04/04/89	..	NR	0.2 ± 0.2	NR
SW046	04/04/89	..	NR	0.1 ± 0.3	NR
SW066	03/29/89	..	NR	0.5 ± 0.3	NR
SW067	04/04/89	..	NR	..	NR
SW068	03/29/89	..	NR	0.2 ± 0.2	NR
SW069	03/29/89	..	NR	0.1 ± 0.2	NR
SW069	04/05/89	***			
SW070	03/29/89	..	NR	0.2 ± 0.3	NR

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value
*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

APPENDIX C-6

OPERABLE UNIT NO. 1

SURFACE WATER SAMPLING RESULTS

TOTAL RADIOCHEMISTRY

Round One 1989 Total Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Gross Alpha pCi/l	Gross Beta pCi/l	Uranium 233, 234 pCi/l	Uranium 235 pCi/l
Upper Limit of Tolerance Interval					
Round One - 1989		266.6580	213.4320	1.250000	0.106000
SW031	03/30/89	..	..	3.3 ± 0.5	..
SW044	04/03/89	..	..	2.7 ± 0.4	..
SW045	04/04/89	..	..	6.6 ± 0.9	0.7 ± 0.3
SW046	04/04/89	..	..	4.4 ± 0.6	0.5 ± 0.2
SW066	03/29/89	..	..	2.8 ± 0.4	0.2 ± 0.1
SW067	04/04/89	..	..	7.5 ± 0.8	0.3 ± 0.2
SW068	03/29/89	..	..	2.8 ± 0.4	0.3 ± 0.1
SW069	03/29/89	..	..	2.1 ± 0.4	0.6 ± 0.2
SW069	04/05/89	***			
SW070	03/29/89	..	..	3.6 ± 0.5	0.6 ± 0.2

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value
*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

Round One 1989 Total Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Uranium 238 pCi/l	Strontium 89,90 pCi/l	Plutonium 239 pCi/l	Americium 241 pCi/l
Upper Limit of Tolerance Interval					
Round One - 1989		0.937000	2.160000	1.066000	0.111000
SW031	03/30/89	3.3 ± 0.5	..	..	..
SW044	04/03/89	4.3 ± 0.5	..	..	..
SW045	04/04/89	5.0 ± 0.8	..	..	..
SW046	04/04/89	4.2 ± 0.6	..	..	..
SW066	03/29/89	3.4 ± 0.5	..	..	..
SW067	04/04/89	11 ± 1	..	..	..
SW068	03/29/89	3.5 ± 0.4	..	..	..
SW069	03/29/89	2.3 ± 0.4	..	..	..
SW069	04/05/89	***			
SW070	03/29/89	3.1 ± 0.4	..	..	..

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value
*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

Round One 1989 Total Radiochemistry Results for Surface Water Stations at Operable Unit No. 1 Reported for Values Greater than Upper Limit of Tolerance Interval*

881 HILLSIDE

Station Number	Date Sampled	Cesium 137 pCi/l	Tritium pCi/l	Radium 226 pCi/l	Radium 228 pCi/l
Upper Limit of Tolerance Interval Round One - 1989		12.78800	266.1070	5.500000*	11.00000*
SW031	03/30/89	..	300 ± 160	..	NR
SW044	04/03/89	..	..	NR	NR
SW045	04/04/89	..	..	NR	NR
SW046	04/04/89	..	..	..	NR
SW066	03/29/89	..	..	..	NR
SW067	04/04/89	..	..	..	..
SW068	03/29/89	..	..	..	NR
SW069	03/29/89	..	..	..	NR
SW069	04/05/89	***			
SW070	03/29/89	..	..	..	NR

Notes: NR = Analyte not reported * = When no tolerance interval, highest background value

*** = Insufficient Sample for Radiochemistry Analyses .. = value less than tolerance interval

APPENDIX D

OPERABLE UNIT NO. 1

SEDIMENT SAMPLING RESULTS

APPENDIX D-1

OPERABLE UNIT NO. 1

SEDIMENT SAMPLING RESULTS

VOLATILE ORGANICS

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Chloro methane uG/kg	Bromo methane uG/kg	Vinyl Chloride uG/kg	Chloro ethane uG/kg	Methylene Chloride uG/kg	Acetone uG/kg	Carbon Disulfide uG/kg
SD001	03/07/89	17 U	17 U	17 U	17 U	7 JB	17 U	9 U
SD025	03/08/89	21 U	21 U	21 U	21 U	3 JB	21 U	10 U
SD026	03/08/89	15 U	15 U	15 U	15 U	3 JB	15 U	8 U
SD027	03/06/89	14 U	14 U	14 U	14 U	8 B	5 JB	7 U
SD028	03/06/89	17 U	17 U	17 U	17 U	9 B	8 JB	8 U
SD028	03/06/89	20 U	20 U	20 U	20 U	11 B	6 JB	10 U
SD029	03/09/89	16 U	16 U	16 U	16 U	9 B	18	8 U
SD029	03/09/89	60	12 U	12 U	12 U	11 B	12 U	6 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	1,1-Di-chloro ethene uG/kg	1,1-Di-chloro ethane uG/kg	Trans-1,2-Dichloro ethene uG/kg	Total-1,2-Dichloro ethene uG/kg	Chloroform uG/kg	1,2-Di-chloro ethane uG/kg	2-Butanone uG/kg
SD001	03/07/89	9 U	9 U	5 U	9 U	9 U	9 U	17 U
SD025	03/08/89	10 U	10 U	NR	10 U	10 U	10 U	21 U
SD026	03/08/89	8 U	8 U	NR	8 U	8 U	8 U	15 U
SD027	03/06/89	7 U	7 U	NR	7 U	7 U	7 U	14 U
SD028	03/06/89	8 U	8 U	NR	8 U	8 U	8 U	17 U
SD028	03/06/89	10 U	10 U	NR	10 U	10 U	10 U	20 U
SD029	03/09/89	8 U	8 U	NR	8 U	8 U	8 U	16 U
SD029	03/09/89	6 U	6 U	NR	6 U	6 U	6 U	12 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	1,1,1-Tri chloro ethane uG/kg	Carbon Tetra chloride uG/kg	Vinyl Acetate uG/kg	Bromo dichloro methane uG/kg	1,2-Di-chloro propane uG/kg	Cis-1,3-Dichloro propene uG/kg	Trichloro ethene uG/kg
SD001	03/07/89	9 U	9 U	17 U	9 U	9 U	9 U	9 U
SD025	03/08/89	10 U	10 U	21 U	10 U	10 U	10 U	5 J
SD026	03/08/89	8 U	8 U	15 U	8 U	8 U	8 U	3 J
SD027	03/06/89	7 U	7 U	14 U	7 U	7 U	7 U	7 U
SD028	03/06/89	8 U	8 U	17 U	8 U	8 U	8 U	8 U
SD028	03/06/89	10 U	10 U	20 U	10 U	10 U	10 U	10 U
SD029	03/09/89	8 U	8 U	16 U	8 U	8 U	8 U	8 U
SD029	03/09/89	6 U	6 U	12 U	6 U	6 U	6 U	6 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Dibromo chloro methane uG/kg	1,1,2-Tri chloro ethane uG/kg	Benzene uG/kg	Trans-1,3- Dichloro propene uG/kg	2-Chloro ethylvinyl ether uG/kg	Bromoform uG/kg	4-Methyl- 2-penta none uG/kg
SD001	03/07/89	9 U	9 U	9 U	9 U	10 U	9 U	17 U
SD025	03/08/89	10 U	10 U	10 U	10 U	NR	10 U	21 U
SD026	03/08/89	8 U	8 U	8 U	8 U	NR	8 U	15 U
SD027	03/06/89	7 U	7 U	7 U	7 U	NR	7 U	14 U
SD028	03/06/89	8 U	8 U	8 U	8 U	NR	8 U	17 U
SD028	03/06/89	10 U	10 U	10 U	10 U	NR	10 U	20 U
SD029	03/09/89	8 U	8 U	8 U	8 U	NR	8 U	16 U
SD029	03/09/89	6 U	6 U	6 U	6 U	NR	6 U	12 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	2-Hexanone uG/kg	Tetra chloro ethene uG/kg	1,1,2,2-Tetrachloro ethane uG/kg	Toluene uG/kg	Chloro benzene uG/kg	Ethyl benzene uG/kg	Styrene uG/kg
SD001	03/07/89	17 U	9 U	17 U	9 U	9 U	9 U	9 U
SD025	03/08/89	21 U	10 U	10 U	10 U	10 U	10 U	10 U
SD026	03/08/89	15 U	8 U	8 U	8 U	8 U	8 U	8 U
SD027	03/06/89	14 U	7 U	7 U	7 U	7 U	7 U	7 U
SD028	03/06/89	17 U	8 U	8 U	8 U	8 U	8 U	8 U
SD028	03/06/89	20 U	10 U	10 U	10 U	10 U	10 U	10 U
SD029	03/09/89	16 U	8 U	8 U	2 J	8 U	8 U	8 U
SD029	03/09/89	12 U	6 U	6 U	2 J	6 U	6 U	6 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Total Xylenes uG/kg
SD001	03/07/89	9 U
SD025	03/08/89	10 U
SD026	03/08/89	8 U
SD027	03/06/89	7 U
SD028	03/06/89	8 U
SD028	03/06/89	10 U
SD029	03/09/89	8 U
SD029	03/09/89	6 U

NR = Analyte not reported
J = Present below detection limit
U = Analyzed but not detected
B = Present in laboratory blank
* = Holding time not met
N = Batch spike not in 80-120% range
E = Estimated value

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Chloro methane uG/kg	Bromo methane uG/kg	Vinyl Chloride uG/kg	Chloro ethane uG/kg	Methylene Chloride uG/kg	Acetone uG/kg	Carbon Disulfide uG/kg
SD030	03/08/89	32 U	32 U	32 U	32 U	5 JB	32 U	16 U
SD030	03/13/89	14 U	14 U	14 U	14 U	7 B	14 U	7 U
SD030	03/13/89	19 J	10 U	10 U	10 U	16 JB	220 B	6 J
SD030	03/13/89	30 U	30 U	30 U	30 U	13 JB	30 U	15 U
SD031	03/06/89	14 U	14 U	14 U	14 U	8 B	8 JB	7 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	1,1-Di-chloro ethene uG/kg	1,1-Di-chloro ethane uG/kg	Trans-1,2-Dichloro ethene uG/kg	Total-1,2-Dichloro ethene uG/kg	Chloroform uG/kg	1,2-Di-chloro ethane uG/kg	2-Butanone uG/kg
SD030	03/08/89	16 U	16 U	NR	16 U	16 U	16 U	32 U
SD030	03/13/89	7 U	7 U	NR	7 U	7 U	7 U	14 U
SD030	03/13/89	5 U	5 U	NR	5 U	5 U	5 U	10 U
SD030	03/13/89	15 U	15 U	NR	15 U	15 U	15 U	30 U
SD031	03/06/89	7 U	7 U	NR	7 U	18	7 U	14 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	1,1,1-Tri chloro ethane uG/kg	Carbon Tetra chloride uG/kg	Vinyl Acetate uG/kg	Bromo dichloro methane uG/kg	1,2-Di-chloro propane uG/kg	Cis-1,3-Dichloro propene uG/kg	Trichloro ethene uG/kg
SD030	03/08/89	16 U	16 U	32 U	16 U	16 U	16 U	7 J
SD030	03/13/89	7 U	7 U	14 U	7 U	7 U	7 U	7 U
SD030	03/13/89	5 U	5 U	10 U	5 U	5 U	5 U	5 U
SD030	03/13/89	15 U	15 U	30 U	15 U	15 U	15 U	15 U
SD031	03/06/89	7 U	7 U	14 U	7 U	7 U	7 U	8

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Dibromo chloro methane uG/kg	1,1,2-Tri chloro ethane uG/kg	Benzene uG/kg	Trans-1,3- Dichloro propene uG/kg	2-Chloro ethylvinyl ether uG/kg	Bromoform uG/kg	4-Methyl- 2-penta none uG/kg
SD030	03/08/89	16 U	16 U	16 U	16 U	NR	16 U	32 U
SD030	03/13/89	7 U	7 U	7 U	7 U	NR	7 U	14 U
SD030	03/13/89	5 U	5 U	5 U	5 U	NR	5 U	10 U
SD030	03/13/89	15 U	15 U	15 U	15 U	NR	15 U	30 U
SD031	03/06/89	7 U	7 U	7 U	7 U	NR	7 U	14 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	2-Hexanone uG/kg	Tetra chloro ethene uG/kg	1,1,2,2-Tetrachloro ethane uG/kg	Toluene uG/kg	Chloro benzene uG/kg	Ethyl benzene uG/kg	Styrene uG/kg
SD030	03/08/89	32 U	16 U	16 U	16 U	16 U	16 U	16 U
SD030	03/13/89	14 U	7 U	7 U	2 J	7 U	7 U	7 U
SD030	03/13/89	10 U	5 U	5 U	6 J	5 U	5 U	5 U
SD030	03/13/89	30 U	15 U	15 U	4 J	15 U	15 U	15 U
SD031	03/06/89	14 U	7 U	7 U	7 U	7 U	7 U	7 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

Volatile Organic Results

For Sediment Stations at Operable Unit No. 1

Station Number	Date Sampled	Total Xylenes uG/kg
SD030	03/08/89	16 U
SD030	03/13/89	7 U
SD030	03/13/89	5 U
SD030	03/13/89	15 U
SD031	03/06/89	7 U

NR = Analyte not reported
U = Analyzed but not detected
* = Holding time not met
E = Estimated value
J = Present below detection limit
B = Present in laboratory blank
N = Batch spike not in 80-120% range

APPENDIX D-2

OPERABLE UNIT NO. 1

SEDIMENT SAMPLING RESULTS

TOTAL METALS

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		24789.00	13.70000U	13.00000*	182.0000*	1.100000U	1.100000U	72551.00
SD001	03/07/89	..	..	..	..	10	..	..
SD025	03/08/89	..	..	NR	..	4.6	..	..
SD026	03/08/89	..	..	..	..	6.4	..	..
SD027	03/06/89	..	..	..	..	9.2	..	..
SD028	03/06/89	..	..	..	224	15.0	..	..
SD028	03/06/89	..	..	..	257	15.5	..	..
SD029	03/09/89	..	..	..	..	3.8	..	..
SD029	03/09/89	..	..	..	..	2.1	..	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		228.0000U	43.38000	11.40000U	22.00000*	28308.00	39.50200	22.80000U
SD001	03/07/89	..	..	..	..	..	..	..
SD025	03/08/89	..	..	..	..	..	..	..
SD026	03/08/89	..	..	..	..	28800	..	..
SD027	03/06/89	..	..	..	..	..	..	..
SD028	03/06/89	..	..	..	23.9	..	..	..
SD028	03/06/89	..	..	..	36.3	..	..	..
SD029	03/09/89	..	..	..	..	..	..	..
SD029	03/09/89	..	..	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		4110.000*	372.2000	0.120000U	22.80000U	29.90000*	1140.000U	0.980000U
SD001	03/07/89	..	509	NR	..	..	..	..
SD025	03/08/89	..	..	NR	..	..	..	..
SD026	03/08/89	..	717	NR	..	..	..	..
SD027	03/06/89	..	..	..	..	..	1440	..
SD028	03/06/89	4220	..	..	..	..	1730	..
SD028	03/06/89	..	484	..	..	..	..	..
SD029	03/09/89	..	..	NR	..	..	2030	..
SD029	03/09/89	..	..	NR	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval•

Station Number	Date Sampled	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		6.800000*	1140.000U	175.0000•	2.000000U	22.80000U	50.20000	92.68800
SD001	03/07/89	..	..	..	..	..	..	..
SD025	03/08/89	32.1	..	..	..	536	..	..
SD026	03/08/89	48.9	..	..	..	364	..	..
SD027	03/06/89	..	..	..	..	..	..	..
SD028	03/06/89	..	..	..	..	..	..	93.3
SD028	03/06/89	..	..	..	..	..	..	98.0
SD029	03/09/89	27.6	..	..	..	388	..	..
SD029	03/09/89	13.3	..	..	..	314	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Aluminum (Al), total mg/kg	Antimony (Sb), total mg/kg	Arsenic (As), total mg/kg	Barium (Ba), total mg/kg	Beryllium (Be), total mg/kg	Cadmium (Cd), total mg/kg	Calcium (Ca), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		24789.00	13.70000U	13.00000*	182.0000*	1.100000U	1.100000U	72551.00
SD030	03/08/89	24800	..	..	300	6.9	..	..
SD030	03/13/89	..	..	..	..	2.5	..	..
SD030	03/13/89	..	..	..	..	3.9	..	..
SD030	03/13/89	..	..	..	184	3.2	..	..
SD031	03/06/89	..	..	..	..	9.4	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Cesium (Cs), total mg/kg	Chromium (Cr), total mg/kg	Cobalt (Co), total mg/kg	Copper (Cu), total mg/kg	Iron (Fe), total mg/kg	Lead (Pb), total mg/kg	Lithium (Li), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		228.0000U	43.38000	11.40000U	22.00000*	28308.00	39.50200	22.80000U
SD030	03/08/89	..	..	..	34.3	28900	66.4	27.8
SD030	03/13/89	..	..	..	..	..	..	..
SD030	03/13/89	..	..	..	..	..	..	..
SD030	03/13/89	..	..	..	..	..	49.0	..
SD031	03/06/89	..	..	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Magnesium (Mg), total mg/kg	Manganese (Mn), total mg/kg	Mercury (Hg), total mg/kg	Molybdenum (Mo), total mg/kg	Nickel (Ni), total mg/kg	Potassium (K), total mg/kg	Selenium (Se), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		4110.000*	372.2000	0.120000U	22.80000U	29.90000*	1140.000U	0.980000U
SD030	03/08/89	5970	1390	NR	..	..	3570	..
SD030	03/13/89	..	..	..	..	..	..	..
SD030	03/13/89	..	..	..	..	..	..	21.3
SD030	03/13/89	..	573	0.56	..	..	..	..
SD031	03/06/89	5230	..	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
I = No background data available

Total Metals Results for Sediment Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Silver (Ag), total mg/kg	Sodium (Na), total mg/kg	Strontium (Sr), total mg/kg	Thallium (Tl), total mg/kg	Tin (Sn), Total mg/kg	Vanadium (V), total mg/kg	Zinc (Zn), total mg/kg
Upper Limit of Tolerance Interval								
Sediment - 1989		6.800000*	1140.000U	175.0000*	2.000000U	22.80000U	50.20000	92.68800
SD030	03/08/89	49.1	..	179	..	819	58.4	136
SD030	03/13/89	15.7	..	..	..	332	..	..
SD030	03/13/89	17.8	..	..	..	1080	..	..
SD030	03/13/89	20.7	..	..	..	904	..	..
SD031	03/06/89	..	..	..	..	..	..	..

NR = Analyte not reported
J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX D-3

OPERABLE UNIT NO. 1

SEDIMENT SAMPLING RESULTS

INORGANICS

Sediment Inorganic Results for Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit
Upper Limit of Tolerance Interval			
Sediment - 1989		1.3000U	9.0300
SD001	03/07/89	3.9	..
SD025	03/08/89	3.9	..
SD026	03/08/89	3.0	..
SD027	03/06/89	..	..
SD028	03/06/89	..	..
SD028	03/06/89	..	..
SD029	03/09/89	..	..
SD029	03/09/89	..	..

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J = Present below detection limit
U = Detection Limit (Analyte not detected in background)
B = Present in laboratory blank
* = When no tolerance interval, highest background value
.. = not detected or value < tolerance inteval
! = No background data available

Sediment Inorganic Results for Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval*

Station Number	Date Sampled	Nitrate+ Nitrite-Nitrogen MG/KG	pH pH Unit
Upper Limit of Tolerance Interval			
Sediment - 1989		1.3000U	9.0300
SD030	03/08/89	8.1	..
SD030	03/13/89	..	..
SD030	03/13/89	..	..
SD030	03/13/89	..	..
SD031	03/06/89	2.1	..

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
! = No background data available

APPENDIX D-4

OPERABLE UNIT NO. 1

SEDIMENT SAMPLING RESULTS

TOTAL RADIOCHEMISTRY

Sediment Total Radiochemistry Results for Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval

Station Number	Date Sampled	Gross Alpha pCi/g	Gross Beta pCi/g	Uranium 233, 234 pCi/g	Uranium 235 pCi/g
Sediment - 1989 Upper Limit of Toleranc Interval		60.1370	50.1380	1.6690	0.1760
SD001	03/07/89	Data not yet received			
SD025	03/08/89	..	..	2.1 ± 0.4	..
SD026	03/08/89	..	..	..	..
SD027	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD029	03/09/89	..	..	..	..
SD029	03/09/89	..	..	..	..
SD030	03/08/89	77 ± 20	..	..	..
SD030	03/13/89	62 ± 18	..	..	..
SD030	03/13/89	Data not yet received			
SD030	03/13/89	..	..	..	..
SD031	03/06/89	Data not yet received			

NR = Analyte not reported
U = Detection Limit (Analyte not detected in background)
* = When no tolerance interval, highest background value
J = Present below detection limit
B = Present in laboratory blank
.. = not detected or value < tolerance inteval
I = No background data available
*** = Insufficient Sample for Radiochemistry Analyses

Sediment Total Radiochemistry Results for Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval

Station Number	Date Sampled	Uranium 238 pCi/g	Strontium 89,90 pCi/g	Plutonium 239 pCi/g	Americium 241 pCi/g
Sediment - 1989 Upper Limit of Toleranc Interval		1.7550	1.3900	0.0960	0.0290
SD001	03/07/89	Data not yet received			
SD025	03/08/89	2.7 ± 0.4	..	3.3 ± 0.1	NR
SD026	03/08/89	..	..	0.42 ± 0.05	NR
SD027	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD029	03/09/89	..	..	0.3 ± 0.1	NR
SD029	03/09/89	..	..	0.85 ± 0.08	NR
SD030	03/08/89	..	..	0.82 ± 0.08	NR
SD030	03/13/89	..	..	0.46 ± 0.06	NR
SD030	03/13/89	Data not yet received			
SD030	03/13/89	..	..	..	NR
SD031	03/06/89	Data not yet received			

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses

Sediment Total Radiochemistry Results for Stations at Operable Unit No. 1

Reported for Values Greater than Upper Limit of Tolerance Interval

Station Number	Date Sampled	Cesium 137 pCi/g	Tritium pCi/ml	Radium 226 pCi/g	Radium 228 pCi/g
Sediment - 1989 Upper Limit of Toleranc Interval		1.5780	0.4080	1.0790	2.3500
SD001	03/07/89	Data not yet received			
SD025	03/08/89	..	..	NR	NR
SD026	03/08/89	..	..	NR	NR
SD027	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD028	03/06/89	Data not yet received			
SD029	03/09/89	..	..	NR	NR
SD029	03/09/89	..	..	NR	NR
SD030	03/08/89	..	..	NR	NR
SD030	03/13/89	..	..	NR	NR
SD030	03/13/89	Data not yet received			
SD030	03/13/89	..	..	NR	NR
SD031	03/06/89	Data not yet received			

NR = Analyte not reported U = Detection Limit (Analyte not detected in background) * = When no tolerance interval, highest background value

J = Present below detection limit B = Present in laboratory blank .. = not detected or value < tolerance inteval I = No background data available

*** = Insufficient Sample for Radiochemistry Analyses