

FINAL REMEDIAL INVESTIGATION REPORT

VOLUME 3

Appendices

Martin Marietta Reduction Facility
The Dalles, Oregon



USEPA SF



1453067

APPENDIX C

ANALYTICAL RESULTS (EXCLUDING AIR)

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RESULTS OF CHEMICAL ANALYSIS OF SAMPLES
COLLECTED DURING 19-28 MARCH 1986 ACCORDING
TO THE WORK PLAN OF THE REMEDIAL INVESTIGATION
AND FEASIBILITY STUDY AT THE MARTIN MARIETTA
REDUCTION FACILITY, THE DALLES, OREGON
REVISION

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I. OVERVIEW

A. INTRODUCTION

Martin Marietta Environmental Systems performed the work presented in this report according to the Workplan (February 1986) for the "Remedial Investigation and Feasibility Study at the Martin Marietta Reduction Facility, The Dalles, Oregon."

Between 24 March and 3 April 1986, Martin Marietta Environmental Systems received water, sediment and surface soil samples collected at the Martin Marietta Reduction Facility, The Dalles, Oregon. Samples were collected during 19-28 March 1986. The contents of this report are divided by site, sample matrix and analysis parameter. Lists of the samples received and corresponding laboratory tracking numbers are found in each section of this report. Additional sample information can be found on the enclosed chain of custody (COC) forms included as Appendix A.

Sample locations, numbers of samples collected and parameters for analysis are shown in Table I-1 (taken from the Geraghty & Miller letter dated 12 March 1986 and attached in full as Appendix C). Samples were analyzed according to methods specified in the Quality Assurance Project Plan of the Remedial Investigation and Feasibility Study. Test procedures are summarized in Appendix D. Minimum concentration levels reported are based on the contract required detection limits set forth in the EPA Contract Laboratory Program statements of work for organics and inorganics (7/85).

B. NOTES FOR INTERPRETATION OF RESULTS

Results are summarized in Tables I-2, I-3, and I-4. Quality control sample data are contained in data tables and Appendix B. Sampling sites are shown in Figures I-1, I-2, I-3, and I-4.

Data are presented in six tabular formats. The content of each table is described below:

- Chemical parameters, including cyanide, fluoride, arsenic, sodium and sulfate.

Arsenic and sodium are reported as total metals. For sediment and soil samples, all parameters have been calculated on a dry weight basis (mg/kg) using the percent solids shown.

- EP toxicity metals.

Results are expressed in units of $\mu\text{g/L}$ for sediment, soil and water samples because of the nature of the test method. Maximum concentrations for EP Toxicity characterization as stated in SW-846 are listed in Appendix F.

- Volatile organic compounds (EPA Method 624).

Results from analysis of sediment and soil samples are not corrected for dry weight and are reported in mg/kg, wet weight.

- Base/neutral extractable compounds (EPA Method 625).

Results from analysis of sediment and soil samples are not corrected for dry weight and are reported in mg/kg.

- Acid extractable compounds (EPA Method 625).

Results from analysis of sediment and soil samples are not corrected for dry weight and are reported in mg/kg.

- PCBs (EPA Method 608).

Results from analysis of sediment and soil samples are not corrected for dry weight.

Table I-1. Sampling schedule*

Parameters	Surface Soil	Sediment Samples						Surface Water					Total	
		A	B	C	D	E	F	B*	C*	D*	E	F*		G
Total cyanide								10	9	5	1	9	7	41
Free cyanide	4	10	4	1	5	5	3	10	9	5	1	9	7	73
Flouride	4	10	4	1	5	5	3	10	9	5	1	9	7	73
Arsenic		10						10	9	5	1	9	7	51
Sodium	4	10	4		5	5	3	10	9	5	1	9	7	72
Sulfate								10	9	5	1	9	7	41
EP TOX			4	1	5	5		10	9	5	1	9	7	56
624		10	4	1		5		10	9	5	1	9	7	61
625		10	4	1		5		10	9	5	1	9	7	61
608			4*					10	9	5	1	9	7	45

Sample Sites

A-Scrubber Sludge Ponds

B-Recycle Pond

C-Lined Pond

D-North Drainage Ditch

E-Discharge Channel

F-Duck Pond

G-Landfill Leachate

*-1 Laboratory composite sample
from total submitted

608-PCBs and Pesticides

624-Purgeable Organic Compounds

625-Base/Neutral and Acid

*Taken from Geraghty & Miller letter dated 12 March 1986, attached in
full as Appendix C.

Table I-2. Summary of Results

Parameters	Sediment Samples Units = ppm (mg/kg)					
	Scrubber Sludge Ponds	Recycle Pond	Lined Pond	North Drainage Ditch	Discharge Channel	Duck Pond
Free CN ⁻	ND(a)	ND	ND	ND-3.6	ND-4.7	ND
Fluoride	204-613	856-1320	3730	92-204	385-1240	76-644
Arsenic	ND-77	NR	NR	NR	NR	NR
Sodium	6,250-45,000	11,800-14,200	NR	1,210-10,400	2,180-8,200	311-1,100
EP TOX metals	NR(b)	ND	As 0.270-0.280 Cd 0.081	Ba 0.200-0.361	Ba ND-0.230 Hg ND-0.0004	NR
<u>Organics</u>						
624-Volatiles	ND	ND	ND	NR	ND	NR
625-Base Neutral/ Acids	1,940-8,570	3,450-7,370	7,760	NR	334-4,820	NR
608-PCBs	NR	ND	ND	NR	NR	NR

(a) Not detected.

Table I-3. Summary of Results

Parameters	Surface Water Samples Units = ppm (mg/L)					
	Recycle Pond(a)	Lined Pond(a)	North Drainage Ditch	Discharge Channel	Duck Pond	Landfill Leachate
Total CN ⁻	ND-0.19	ND(b)	0.037-5.2	6.5	ND	9.4-31
Free CN ⁻	ND	ND	ND-0.82	0.060	ND	0.25-1.0
Fluoride	22	ND-32	3.7-196	33	11-13	1,490-2,450
Arsenic	ND	0.037-0.042	ND-0.037	ND	ND	0.15-0.46
Sodium	100	867-896	35-513	632	21-33	4,270-5,900
Sulfate	94	2,360	25-148	66	42-45	840-2,660
EP TOX metals	ND	ND	Hg ND-0.0024	ND	Hg ND-0.00093	As 0.230-0.390 Cr 0.073-0.164 Hg 0.00036-0.00069
<u>Organics</u>						
624-Volatiles	ND	ND	ND	ND	ND	TCE ND-0.008
625-Base Neutral/Acids	ND	ND	ND-0.025	ND	ND-0.61	ND-0.016
608-PCBs	ND	ND	ND	ND	ND	ND

(a) Laboratory composite sample from total submitted (except 624).

(b) Not detected.

Table I-4. Summary of results

Parameters	Surface Soil Samples Units = ppm (mg/kg)			
	Drainage Ditch	River Road	Metal Pad Storage Area	Old Cathode Waste Pile
Free CN ⁻	ND-3.2	ND*	ND*	4.4-23
Fluoride	271-926	166	465	67-475
Sodium	1,070-15,400	1,480	10,100	7,920-8,700

* Not detected.

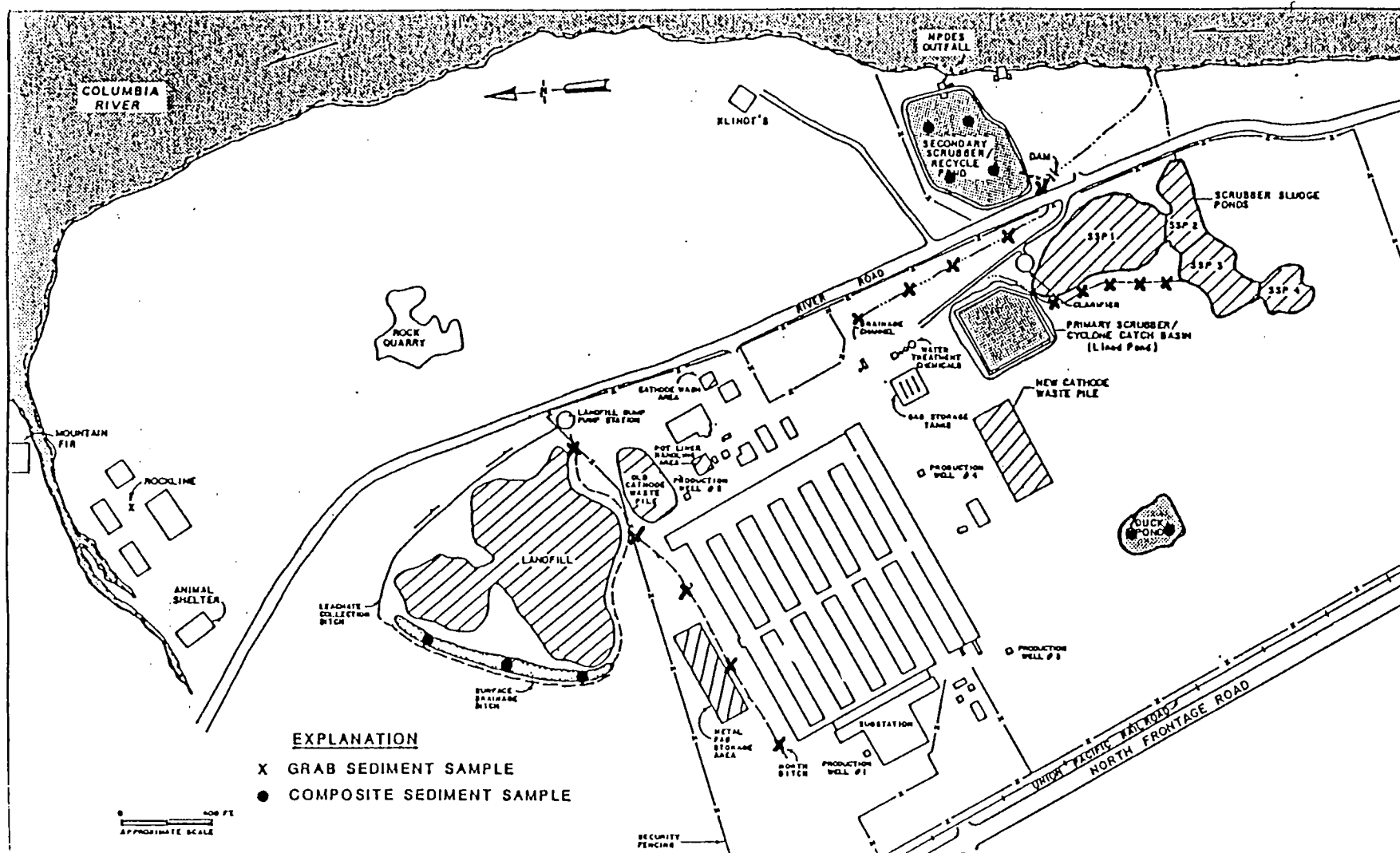


Figure I-1. Sediment sampling locations taken from "Remedial Investigation and Feasibility Study Work Plan," prepared by Geraghty & Miller, Inc.

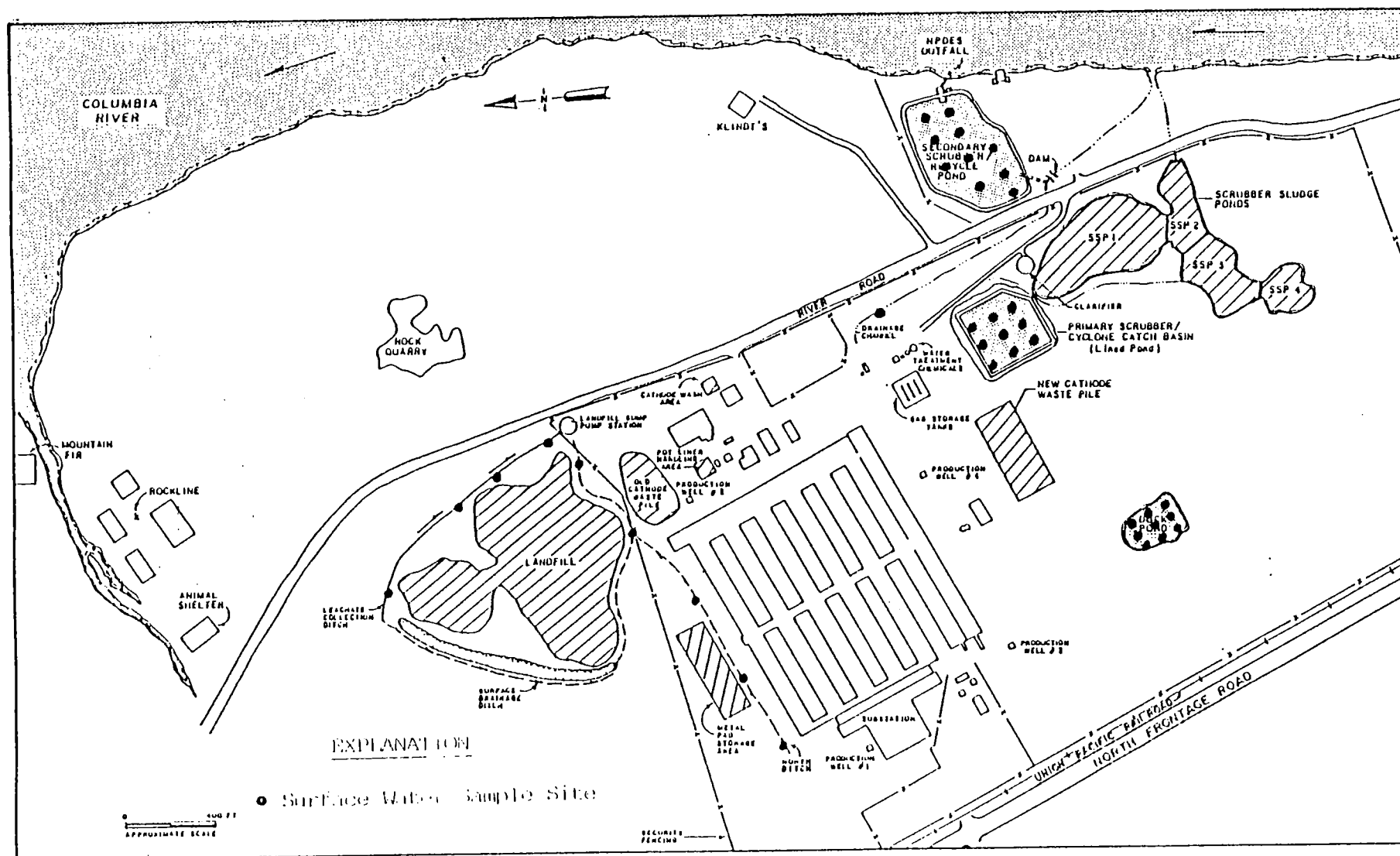


Figure I-2. Surface water sampling locations taken from "Remedial Investigation and Feasibility Study Work Plan," prepared by Geraghty & Miller, Inc.

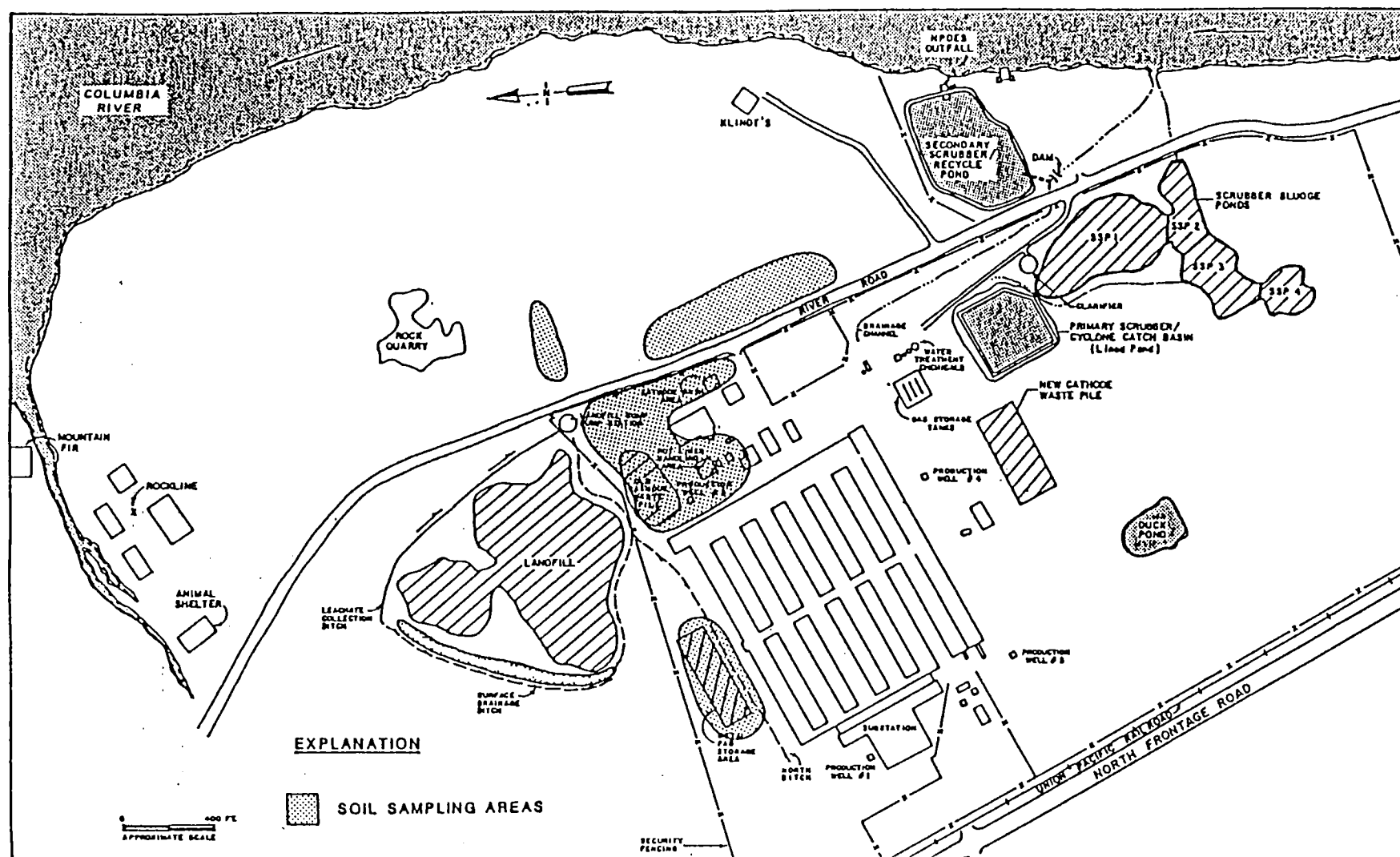


Figure I-3. Soil sampling areas taken from "Remedial Investigation and Feasibility Study Work Plan," prepared by Geraghty & Miller, Inc.

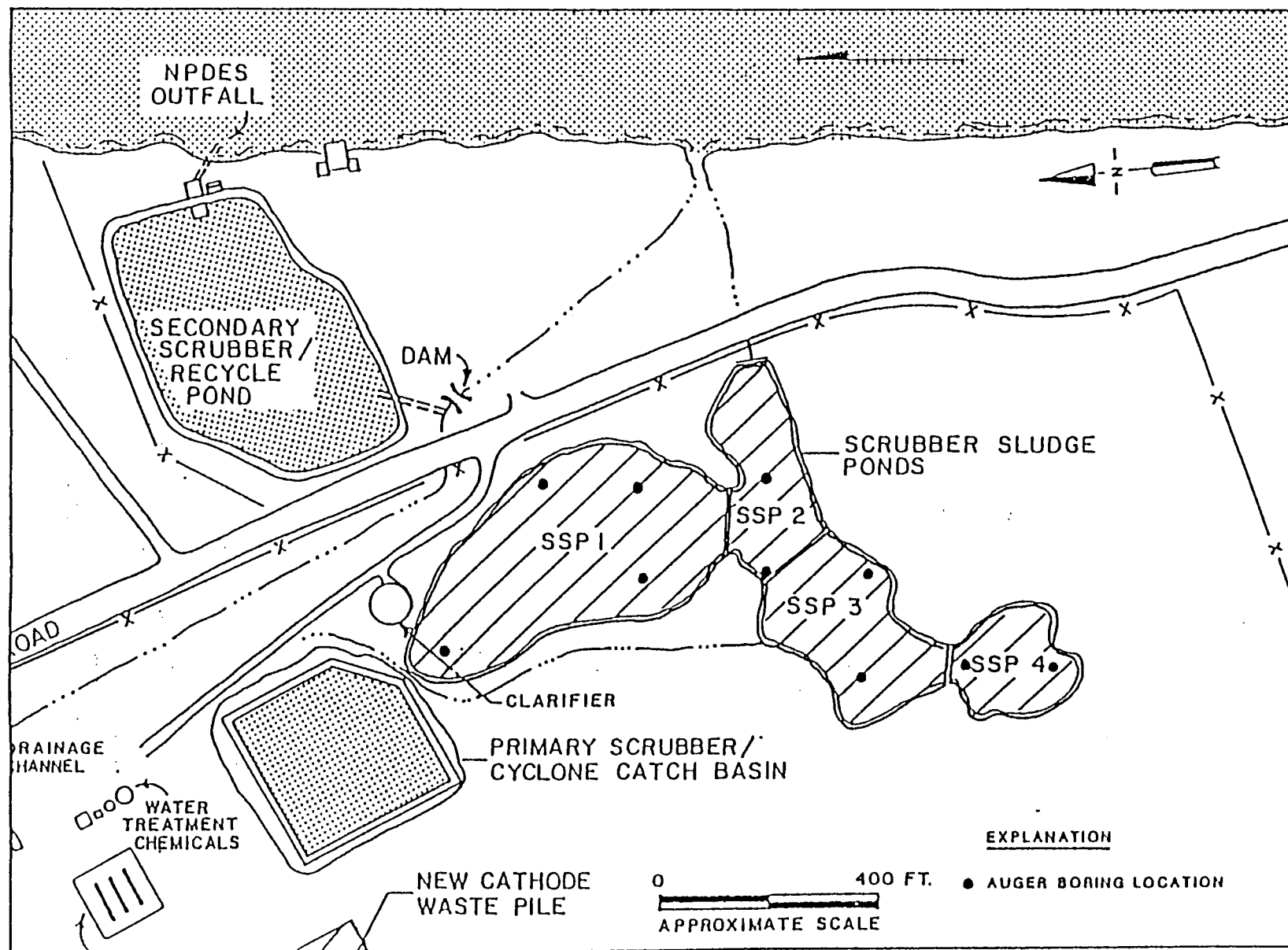


Figure I-4. Auger Boring Locations - Scrubber Sludge Ponds taken from "Remedial Investigation and Feasibility Study Work Plan," prepared by Geraghty & Miller, Inc.

SUMMARY OF METHODS AND HOLDING TIMES

<u>Parameter</u>	<u>Instrument</u>	<u>Method Reference</u>	<u>Holding Time</u>
VOCs	Finnigan GC/MS	Modified 624/CLP (7/85)	14 days from sampling date
BNAs	Finnigan GC/MS	Modified 625/CLP (7/85)	Extracted within 14 days from sampling date*
PCBs	GC/ECD	Modified 608	Extracted within 14 days from sampling date*
Free cyanide	Spectrophotometer	Std. Meth. 412 B,D,H	Distillation - 14 days from sampling date
Total cyanide	Spectrophotometer	Modified 335.2/ CLP (7/85)	14 days from sampling date
C-12 Fluoride-water - sludges/soils	Ion chromatograph	300.0	28 days from sampling date
	Ion selecteve electrode	340.2 + leaching	28 days from sampling date
Sodium	ICP/flame AA	200.7/273.2	6 months from sampling date
Arsenic	Furnace AA	206.2	6 months from sampling date
Sulfate	Ion chromatograph	300.0	28 days from sampling date
EP tox metals	ICP	SW 846/1310 CLP (metals)	Extraction - ASAP Analysis - 6 months from sampling date

* Samples must be completely analyzed within 40 days of extraction.

B. DATA

SECTION II

SCRUBBER SLUDGE PONDS

A. SEDIMENT

Table II-1. List of samples received 3 April 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
SSP1AS	3/28/86	15:12	2792
SSP1BS	3/28/86	14:38	2793
SSP1CS	3/28/86	13:15	2794
SSP1DS	3/28/86	13:52	2795
SSP2ES	3/28/86	12:35	2796
SSP2FS	3/28/86	10:22	2798
SSP3GS	3/28/86	09:40	2799
SSP3HS	3/27/86	17:15	2800
SSP4IS	3/27/86	16:20	2801
SSP4JS	3/27/86	15:30	2802
SSPFBS	3/28/86	15:30	2804

Table II-2. Results of analysis for chemical parameters in sediment samples collected 27 and 28 March 1986 from the Scrubber Sludge Ponds at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86
MMS SAMPLE ID:	2804	2792	2793	2794	2795	2796
CLIENT SAMPLE ID:	SSPFBS	SSP1AS	SSP1BS	SSP1CS	SSP1DS	SSP2ES
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	NR(b)	50	45	44	39	38
total cyanide	NR	NR	NR	NR	NR	NR
free cyanide	<.017	<1.0	<1.1	<1.1	<1.3	<1.3
fluoride	<.05	204	291	407	285	263
arsenic	<.010	<40	<42	<48	64	71
sodium	0.524	15,400	20,600	20,700	18,700	17,700
sulfate	NR	NR	NR	NR	NR	NR

(a) Aqueous field blank; concentration units = ppm (mg/L).

(b) NR = not requested.

Table II-2.. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/27/86	3/27/86	3/27/86	
MES SAMPLE ID:	2798	2799	2800	2801	2802	
CLIENT SAMPLE ID:	SSP2FS	SSP3GS	SSP3HS	SSP4IS	SSP4JS	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	60	39	47	53	68	
total cyanide	NR	NR	NR	NR	NR	
free cyanide	<0.83	<1.3	<1.1	<0.94	<0.74	
fluoride	317	613	387	258	212	
arsenic	34	77	66	50	<12	
sodium	14,500	45,000	18,400	13,600	6250	
sulfate	NR	NR	NR	NR	NR	

Table II-3. Results of analysis for volatile organic compounds in sediment samples collected 27-28 March 1986 from the Scrubber Sludge Ponds at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1-3/28/86	2-3/28/86	3-3/28/86	4-3/28/86	5-3/28/86	6-3/28/86
ANALYSIS DATE:	4/9/86	4/9/86	4/11/86	4/11/86	4/9/86	4/11/86
MMES SAMPLE ID:	2804	2792	2793	2794	2795	2796
CLIENT SAMPLE ID:	SSPFBS	SSP1AS	SSP1BS	SSP1CS	SSP1DS	SSP2ES
NOTE:	(a)	(b)	(b)	(b)	(b)	(b)
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein	<10	<90	<90	<90	<90	<90
acrylonitrile	<10	<90	<90	<90	<90	<90
benzene	<5	<45	<45	<45	<45	<45
bromodichloromethane	<5	<45	<45	<45	<45	<45
bromoform	<5	<45	<45	<45	<45	<45
bromomethane	<5	<45	<45	<45	<45	<45
carbon tetrachloride	<5	<45	<45	<45	<45	<45
chlorobenzene	<5	<45	<45	<45	<45	<45
chloroethane	<5	<45	<45	<45	<45	<45
chloroform	<5	<45	<45	<45	<45	<45
chloromethane	<5	<45	<45	<45	<45	<45
2-chloroethylvinyl ether	<10	<90	<90	<90	<90	<90
cis-1,3-dichloropropene	<5	<45	<45	<45	<45	<45
dibromochloromethane	<5	<45	<45	<45	<45	<45
1,1-dichloroethane	<5	<45	<45	<45	<45	<45
1,2-dichloroethane	<5	<45	<45	<45	<45	<45
1,1-dichloroethylene	<5	<45	<45	<45	<45	<45
1,2-dichloropropane	<5	<45	<45	<45	<45	<45
ethylbenzene	<5	<45	<45	<45	<45	<45
methylene chloride	<10	<90	<90	<90	<90	<90
1,1,2,2-tetrachloroethane	<5	<45	<45	<45	<45	<45
tetrachloroethylene	<5	<45	<45	<45	<45	<45
toluene	<5	<45	<45	<45	<45	<45
trans-1,2-dichloroethylene	<5	<45	<45	<45	<45	<45
trans-1,3-dichloropropene	<5	<45	<45	<45	<45	<45
1,1,1-trichloroethane	<5	<45	<45	<45	<45	<45
1,1,2-trichloroethane	<5	<45	<45	<45	<45	<45
trichloroethylene	<5	<45	<45	<45	<45	<45
vinyl chloride	<5	<45	<45	<45	<45	<45
cis-1,2-dichloroethylene	<5	<45	<45	<45	<45	<45

(a) Aqueous field blank; concentration units = ppb (ng/ml).
(b) Sample diluted 1:9 for analysis.

Table II-3. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/27/86	3/27/86	3/27/86	
ANALYSIS DATE:	4/11/86	4/11/86	4/11/86	4/11/86	4/11/86	
MMES SAMPLE ID:	2798	2799	2800	2801	2802	
CLIENT SAMPLE ID:	SSP2FS	SSP3GS	SSP3HS	SSP4IS	SSP4JS	
NOTE:	(b)	(b)	(b)	(b)	(b)	
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein	<90	<90	<90	<90	<90	
acrylonitrile	<90	<90	<90	<90	<90	
benzene	<45	<45	<45	<45	<45	
bromodichloromethane	<45	<45	<45	<45	<45	
bromoform	<45	<45	<45	<45	<45	
bromomethane	<45	<45	<45	<45	<45	
carbon tetrachloride	<45	<45	<45	<45	<45	
chlorobenzene	<45	<45	<45	<45	<45	
chloroethane	<45	<45	<45	<45	<45	
chloroform	<45	<45	<45	<45	<45	
chloromethane	<45	<45	<45	<45	<45	
2-chloroethylvinyl ether	<90	<90	<90	<90	<90	
cis-1,3-dichloropropene	<45	<45	<45	<45	<45	
dibromochloromethane	<45	<45	<45	<45	<45	
1,1-dichloroethane	<45	<45	<45	<45	<45	
1,2-dichloroethane	<45	<45	<45	<45	<45	
1,1-dichloroethylene	<45	<45	<45	<45	<45	
1,2-dichloropropane	<45	<45	<45	<45	<45	
ethylbenzene	<45	<45	<45	<45	<45	
methylene chloride	<90	<90	<90	<90	<90	
1,1,2,2-tetrachloroethane	<45	<45	<45	<45	<45	
tetrachloroethylene	<45	<45	<45	<45	<45	
toluene	<45	<45	<45	<45	<45	
trans-1,2-dichloroethylene	<45	<45	<45	<45	<45	
trans-1,3-dichloropropene	<45	<45	<45	<45	<45	
1,1,1-trichloroethane	<45	<45	<45	<45	<45	
1,1,2-trichloroethane	<45	<45	<45	<45	<45	
trichloroethylene	<45	<45	<45	<45	<45	
vinyl chloride	<45	<45	<45	<45	<45	
cis-1,2-dichloroethylene	<45	<45	<45	<45	<45	

Table II-4. Results of analysis for base/neutral extractable compounds in sediment samples collected 27 and 28 March 1986 from the Scrubber Sludge Ponds at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86	3/23/86
ANALYSIS DATE:	4/18/86	4/21/86	4/22/86	4/21/86	4/21/86	4/22/86
MMES SAMPLE ID:	2304	2792	2793	2794	2795	2796
CLIENT SAMPLE ID:	SSPFBS	SSP1AS	SSP1BS	SSP1CS	SSP1DS	SSP2ES
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
N-nitroso-dimethylamine	<5	<25	<62.5	<25	<25	<62.5
bis (2-chloroethyl) ether	<5	<25	<62.5	<25	<25	<62.5
1,3-dichlorobenzene	<5	<25	<62.5	<25	<25	<62.5
1,4-dichlorobenzene	<5	<25	<62.5	<25	<25	<62.5
1,2-dichlorobenzene	<5	<25	<62.5	<25	<25	<62.5
bis(2-chloroisopropyl) ether	<5	<25	<62.5	<25	<25	<62.5
N-nitroso-di-N-propylamine	<5	<25	<62.5	<25	<25	<62.5
hexachloroethane	<10	<50	<125	<50	<50	<125
nitrobenzene	<10	<50	<125	<50	<50	<125
isophorone	<5	<25	<62.5	<25	<25	<62.5
bis (2-chloroethoxy) methane	<5	<25	<62.5	<25	<25	<62.5
1,2,4-trichlorobenzene	<5	<25	<62.5	<25	<25	<62.5
naphthalene	<5	<25	<62.5	<25	<25	<62.5
hexachlorobutadiene	<5	<25	<62.5	<25	<25	<62.5
hexachlorocyclopentadiene	<10	<50	<125	<50	<50	<125
2-chloronaphthalene	<5	<25	<62.5	<25	<25	<62.5
dimethylphthalate	<5	<25	<62.5	<25	<25	<62.5
acenaphthalene	<5	<25	<62.5	<25	<25	<62.5
2,5-dinitrotoluene	<10	<50	<125	<50	<50	<125
acenaphthene	<5	<25	<62.5	<25	<25	<62.5
2,4-dinitrotoluene	<10	<25	<62.5	<25	<25	<62.5
diethylphthalate	<10	<50	<125	<50	<50	<125
fluorene	<5	<25	<62.5	<25	<25	<62.5
4-chlorophenylphenyl ether	<5	<25	<62.5	<25	<25	<62.5
N-nitrosodiphenylamine	<10	<50	<125	<50	<50	<125
4-bromophenylphenyl ether	<5	<25	<62.5	<25	<25	<62.5
hexachlorobenzene	<5	<25	<62.5	<25	<25	<62.5
phenanthrene	<5	<25	130	<25	140	<62.5
anthracene	<5	<25	<62.5	<25	<25	<62.5

(a)Aqueous field blank; concentration units = ppb (ng/ml).

Table II-4. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86
ANALYSIS DATE:	4/18/86	4/21/86	4/22/86	4/21/86	4/21/86	4/22/86
MMES SAMPLE ID:	2804	2792	2793	2794	2795	2796
CLIENT SAMPLE ID:	SSPFBS	SSP1AS	SSP1BS	SSP1CS	SSP1DS	SSP2ES
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
di-N-butylphthalate	<10	<50	<125	<50	<50	<125
fluoranthene	<5	970	2310	770	700	1780
benzidine	<200	<1000	<2500	<1000	<1000	<2500
pyrene	<5	560	2000	540	590	1220
butylbenzylphthalate	<10	<50	<125	<50	<50	<125
3,3'-dichlorobenzidine	<10	<50	<125	<50	<50	<125
benzo (a) anthracene	<5	270	530	250	200	340
chrysene	<5	670	1230	640	480	1240
bis (2-ethylhexyl) phthalate	<10	<50	<125	<50	<50	<125
di-N-octylphthalate	<10	<50	<125	<50	<50	<125
benzo (b & k) fluoranthenes	<5	690	1310	610	450	1430
benzo (a) pyrene	<5	280	360	170	200	330
indeno-1,2,3 (c,d) pyrene	<10	140	320	130	<50	370
dibenzo (a,h) anthracene	<10	<50	<125	<50	<50	<125
benzo (g,h,i) perylene	<10	150	380	130	<50	470

Table II-4. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/27/86	3/27/86	3/27/86	
ANALYSIS DATE:	4/22/86	4/22/86	4/22/86	4/22/86	4/24/86	
MMES SAMPLE ID:	2798	2799	2800	2801	2302	
CLIENT SAMPLE ID:	SSP2FS	SSP3GS	SSP3HS	SSP4IS	SSP4JS	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
N-nitroso-dimethylamine	<25	<62.5	<62.5	<62.5	<62.5	
bis (2-chloroethyl) ether	<25	<62.5	<62.5	<62.5	<62.5	
1,3-dichlorobenzene	<25	<62.5	<62.5	<62.5	<62.5	
1,4-dichlorobenzene	<25	<62.5	<62.5	<62.5	<62.5	
1,2-dichlorobenzene	<25	<62.5	<62.5	<62.5	<62.5	
bis(2-chloroisopropyl) ether	<25	<62.5	<62.5	<62.5	<62.5	
N-nitroso-di-N-propylamine	<25	<62.5	<62.5	<62.5	<62.5	
hexachloroethane	<50	<125	<125	<125	<125	
nitrobenzene	<50	<125	<125	<125	<125	
isophorone	<25	<62.5	<62.5	<62.5	<62.5	
bis (2-chloroethoxy) methane	<25	<62.5	<62.5	<62.5	<62.5	
1,2,4-trichlorobenzene	<25	<62.5	<62.5	<62.5	<62.5	
naphthalene	<25	<62.5	<62.5	<62.5	<62.5	
hexachlorobutadiene	<25	<62.5	<62.5	<62.5	<62.5	
hexachlorocyclopentadiene	<50	<125	<125	<125	<125	
2-chloronaphthalene	<25	<62.5	<62.5	<62.5	<62.5	
dimethylphthalate	<25	<62.5	<62.5	<62.5	<62.5	
acenaphthalene	<25	<62.5	<62.5	<62.5	<62.5	
2,6-dinitrotoluene	<50	<125	<125	<125	<125	
acenaphthene	<25	<62.5	<62.5	<62.5	<62.5	
2,4-dinitrotoluene	<25	<62.5	<62.5	<62.5	<62.5	
diethylphthalate	<50	<125	<125	<125	<125	
fluorene	<25	<62.5	<62.5	<62.5	<62.5	
4-chlorophenylphenyl ether	<25	<62.5	<62.5	<62.5	<62.5	
N-nitrosodiphenylamine	<50	<125	<125	<125	<125	
4-bromophenylphenyl ether	<25	<62.5	<62.5	<62.5	<62.5	
hexachlorobenzene	<25	<62.5	<62.5	<62.5	<62.5	
phenanthrene	100	260	880	<62.5	<62.5	
anthracene	<25	<62.5	<62.5	<62.5	<62.5	

Table II-4. Continued

SAMPLE DATE:	3/28/86	3/28/86	3/27/86	3/27/86	3/27/86	
ANALYSIS DATE:	4/22/86	4/22/86	4/22/86	4/22/86	4/24/86	
MHES SAMPLE ID:	2798	2799	2800	2801	2802	
CLIENT SAMPLE ID:	SSP2FS	SSP3GS	SSP3HS	SSP4IS	SSP4JS	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
di-N-butylphthalate	<50	<125	<125	<125	<125	
fluoranthene	560	630	2590	1130	450	
benzidine	<1000	<2500	<2500	<2500	<2500	
pyrene	280	530	1400	870	260	
butylbenzylphthalate	<50	<125	<125	<125	<125	
3,3'-dichlorobenzidine	<50	<125	<125	<125	<125	
benzo (a) anthracene	120	300	430	280	<62.5	
chrysene	360	830	1020	625	590	
bis (2-ethylhexyl) phthalate	<50	<125	<125	<125	<125	
di-N-octylphthalate	<50	<125	<125	<125	<125	
benzo (b & k) fluoranthenes	360	790	1090	670	700	
benzo (a) pyrene	160	180	430	160	160	
indeno-1,2,3 (c,d) pyrene	<50	180	260	<125	220	
dibenzo (a,h) anthracene	<50	<125	<125	<125	<125	
benzo (g,h,i) perylene	<50	250	260	244	290	

Table II-5. Results of analysis for acid extractable compounds in sediment samples collected 27 and 28 March 1986 from the Scrubber Sludge Ponds at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86	3/28/86
ANALYSIS DATE:	4/18/86	4/21/86	4/22/86	4/21/86	4/21/86	4/22/86
MMES SAMPLE ID:	2804	2792	2793	2794	2795	2796
CLIENT SAMPLE ID:	SSPFBS	SSP1AS	SSP1BS	SSP1CS	SSP1DS	SSP2ES
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
phenol	<10	<25	<62.5	<25	<25	<62.5
2-chlorophenol	<5	<25	<62.5	<25	<25	<62.5
2-nitrophenol	<5	<25	<62.5	<25	<25	<62.5
2,3-dimethylphenol	<5	<25	<62.5	<25	<25	<62.5
2,4-dichlorophenol	<5	<25	<62.5	<25	<25	<62.5
4-chloro-3-methylphenol	<5	<25	<62.5	<25	<25	<62.5
2,4,5-trichlorophenol	<5	<25	<62.5	<25	<25	<62.5
2,4-dinitrophenol	<15	<75	<187.5	<75	<75	<187.5
4-nitrophenol	<10	<50	<125	<50	<50	<125
4,6-dinitro-o-cresol	<15	<75	<187.5	<75	<75	<187.5
pentachlorophenol	<10	<50	<125	<50	<50	<125

(a) Aqueous field blank; concentration units = ng/ml.

Table II-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/28/86	3/28/86	3/27/86	3/27/86	3/27/86	
ANALYSIS DATE:	4/22/86	4/22/86	4/22/86	4/22/86	4/24/86	
MMES SAMPLE ID:	2798	2799	2800	2801	2802	
CLIENT SAMPLE ID:	SSP2FS	SSP3GS	SSP3HS	SSP4IS	SSP4JS	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
phenol	<25	<62.5	<62.5	<62.5	<62.5	
2-chlorophenol	<25	<62.5	<62.5	<62.5	<62.5	
2-nitrophenol	<25	<62.5	<62.5	<62.5	<62.5	
2,3-dimethylphenol	<25	<62.5	<62.5	<62.5	<62.5	
2,4-dichlorophenol	<25	<62.5	<62.5	<62.5	<62.5	
4-chloro-3-methylphenol	<25	<62.5	<62.5	<62.5	<62.5	
2,4,6-trichlorophenol	<25	<62.5	<62.5	<62.5	<62.5	
2,4-dinitrophenol	<75	<187.5	<187.5	<187.5	<187.5	
4-nitrophenol	<50	<125	<125	<125	<125	
4,6-dinitro-o-cresol	<75	<187.5	<187.5	<187.5	<187.5	
pentachlorophenol	<50	<125	<125	<125	<125	

C. SURFACE WATER

SECTION III

RECYCLE POND

A. SEDIMENT

Table III-1. List of samples received 26 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
RPFBS	3/22/86	14:35	2604
RPAS	3/22/86	13:00	2605
RPBS	3/22/86	13:40	2606
RPCS	3/22/86	13:55	2608
RPDS	3/22/86	14:15	2609
RPCS	3/22/86	13:55	2610

Table III-2. Results of analysis for chemical parameters in sediment samples collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	-1-	-2-	-3-	-4-	-5-	-6-
SAMPLE DATE:	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	
LABORATORY SAMPLE ID:	2604	2505	2606	2603	2509	
CLIENT SAMPLE ID:	RPFBS	RPAS	RPBS	RPCS	RPDS	
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	NR (b)	46	43	44	45	
total cyanide	NR	NR	NR	NR	NR	
free cyanide	<.017	<1.1	<1.2	<1.1	<1.1	
fluoride	<1.0	856	1260	1320	1020	
arsenic	NR	NR	NR	NR	NR	
sodium	IS (c)	12,000	11,800	14,200	11,300	
sulfate	NR	NR	NR	NR	NR	

(a) Aqueous field blank; concentration units = ppm (mg/L).

(b) NR = not requested.

(c) IS = insufficient sample to perform all analyses requested.

Table III-3. Results of analysis for EP toxicity metals in sediment samples collected 22 March 1986 from the Recycle Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract

Units: ppb ($\mu\text{g/L}$)

MMES ID	2604		2605	2605 ^(a)	2606	2606 ^(b)	2608	2608 ^(b)	2609	Ext(c) Blank	Prep(d) Blank	
Client ID	RPFBS ^(e)		RPAS	RPAS	RPBS	RPBS	RPCS	RPCS	RPDS			
Sample Date	3/22/86		3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86			
Metal	Analysis Date		Analysis Date									
Arsenic	4/8/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Barium	4/8/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Cadmium	4/8/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	
Chromium	4/8/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	
Lead	4/8/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Mercury	4/4/86	0.74	4/4/86	<0.3	<0.3	<0.3	<0.3	<0.3	--(f)	<0.3	<0.3	<0.3
Selenium	4/8/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Silver	4/8/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	

(a) Extraction duplicate analysis.

(b) Digestion duplicate analysis.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(e) Aqueous field blank.

(f) Sample not analyzed for this parameter.

Table III-4. Results of analysis for volatile organic compounds in sediment samples collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1- 3/22/86	2- 3/22/86	3- 3/22/86	4- 3/22/86	5- 3/22/86	6- 3/22/86
ANALYSIS DATE:	4/5/86	4/5/86	4/5/86	4/5/86	4/5/86	4/5/86
MMES SAMPLE ID:	2604	2605	2606	2610	2609	
CLIENT SAMPLE ID:	RPFB5	RPAS	RPBS	RPCS	RPDS	
NOTE:	(a)	(b)	(b)	(b)	(b)	
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein	<10	<90	<90	<90	<90	
acrylonitrile	<10	<90	<90	<90	<90	
benzene	<5	<45	<45	<45	<45	
bromodichloromethane	<5	<45	<45	<45	<45	
bromoform	<5	<45	<45	<45	<45	
bromomethane	<5	<45	<45	<45	<45	
carbon tetrachloride	<5	<45	<45	<45	<45	
chlorobenzene	<5	<45	<45	<45	<45	
chloroethane	<5	<45	<45	<45	<45	
chloroform	<5	<45	<45	<45	<45	
chloromethane	<5	<45	<45	<45	<45	
2-chloroethylvinyl ether	<10	<90	<90	<90	<90	
cis-1,3-dichloropropene	<5	<45	<45	<45	<45	
dibromochloromethane	<5	<45	<45	<45	<45	
1,1-dichloroethane	<5	<45	<45	<45	<45	
1,2-dichloroethane	<5	<45	<45	<45	<45	
1,1-dichloroethylene	<5	<45	<45	<45	<45	
1,2-dichloropropane	<5	<45	<45	<45	<45	
ethylbenzene	<5	<45	<45	<45	<45	
methylene chloride	<10	<90	<90	<90	<90	
1,1,2,2-tetrachloroethane	<5	<45	<45	<45	<45	
tetrachloroethylene	<5	<45	<45	<45	<45	
toluene	<5	<45	<45	<45	<45	
trans-1,2-dichloroethylene	<5	<45	<45	<45	<45	
trans-1,3-dichloropropene	<5	<45	<45	<45	<45	
1,1,1-trichloroethane	<5	<45	<45	<45	<45	
1,1,2-trichloroethane	<5	<45	<45	<45	<45	
trichloroethylene	<5	<45	<45	<45	<45	
vinyl chloride	<5	<45	<45	<45	<45	
cis-1,2-dichloroethylene	<5	<45	<45	<45	<45	

(a) Aqueous field blank; concentration units = ppb (ng/ml).

(b) Sample diluted 1:9 for analysis.

Table III-5. Results of analysis for base/neutral extractable compounds in sediment samples collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	
ANALYSIS DATE:	4/30/86	4/21/86	4/21/86	4/20/86	4/21/86	
MNES SAMPLE ID:	2604	2605	2606	2608	2609	
CLIENT SAMPLE ID:	RPFB	RPAS	RPBS	RPCS	RPDS	
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
N-nitroso-dimethylamine	<5	<62.5	<62.5	<25	<62.5	
bis (2-chloroethyl) ether	<5	<62.5	<62.5	<25	<62.5	
1,3-dichlorobenzene	<5	<62.5	<62.5	<25	<62.5	
1,4-dichlorobenzene	<5	<62.5	<62.5	<25	<62.5	
1,2-dichlorobenzene	<5	<62.5	<62.5	<25	<62.5	
bis(2-chloroisopropyl) ether	<5	<62.5	<62.5	<25	<62.5	
N-nitroso-di-N-propylamine	<5	<62.5	<62.5	<25	<62.5	
hexachloroethane	<10	<125	<125	<50	<125	
nitrobenzene	<10	<125	<125	<50	<125	
isophorone	<5	<62.5	<62.5	<25	<62.5	
bis (2-chloroethoxy) methane	<5	<62.5	<62.5	<25	<62.5	
1,2,4-trichlorobenzene	<5	<62.5	<62.5	<25	<62.5	
naphthalene	<5	<62.5	<62.5	<25	<62.5	
hexachlorobutadiene	<5	<62.5	<62.5	<25	<62.5	
hexachlorocyclopentadiene	<10	<125	<125	<50	<125	
2-chloronaphthalene	<5	<62.5	<62.5	<25	<62.5	
dimethylphthalate	<5	<62.5	<62.5	<25	<62.5	
acenaphthalene	<5	<62.5	<62.5	<25	<62.5	
2,6-dinitrotoluene	<10	<125	<62.5	<50	<62.5	
acenaphthene	<5	<62.5	<62.5	<25	<62.5	
2,4-dinitrotoluene	<10	<125	<125	<50	<125	
diethylphthalate	<10	<125	<125	<50	<125	
fluorene	<5	<62.5	<62.5	<25	<62.5	
4-chlorophenylphenyl ether	<5	<62.5	<62.5	<25	<62.5	
N-nitrosodiphenylamine	<10	<125	<125	<50	<125	
4-bromophenylphenyl ether	<5	<62.5	<62.5	<25	<62.5	
hexachlorobenzene	<5	<62.5	<62.5	<25	<62.5	
phenanthrene	<5	140	130	270	98	
anthracene	<5	<62.5	<62.5	<25	<62.5	

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table III-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	
ANALYSIS DATE:	4/30/86	4/21/86	4/21/86	4/20/86	4/21/86	
MMES SAMPLE ID:	2604	2605	2606	2608	2609	
CLIENT SAMPLE ID:	RPFBS	RPAS	RPBS	RPCS	RPDS	
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
di-N-butylphthalate	<10	<125	<125	<50	<125	
fluoranthene	<5	2170	1580	2410	1220	
benzidine	<200	<2500	<2500	<1000	<2500	
pyrene	<5	1230	1000	1330	770	
butylbenzylphthalate	<10	<125	<125	<50	<125	
3,3'-dichlorobenzidine	<10	<125	<125	<50	<125	
benzo (a) anthracene	<5	470	370	790	340	
chrysene	<5	710	580	1040	510	
bis (2-ethylhexyl) phthalate	<10	<125	<125	<50	<125	
di-N-octylphthalate	<10	<125	<125	<50	<125	
benzo (b & k) fluoranthenes	<5	470	400	920	380	
benzo (a) pyrene	<5	190	145	310	130	
indeno-1,2,3 (c,d) pyrene	<10	150	<125	160	<125	
dibenzo (a,h) anthracene	<10	<125	<125	<50	<125	
benzo (g,h,i) perylene	<10	140	<125	140	<125	

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table III-6. Results of analysis for acid extractable compounds in sediment samples collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/22/86	2 3/22/86	3 3/22/86	4 3/22/86	5 3/22/86	6 3/22/86
ANALYSIS DATE:	4/30/86	4/21/86	4/21/86	4/20/86	4/21/86	
MMES SAMPLE ID:	2604	2605	2606	2608	2609	
CLIENT SAMPLE ID:	RPFBS	RPAS	RPBS	RPCS	RPDS	
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
phenol	<5	<62.5	<62.5	<25	<62.5	
2-chlorophenol	<5	<62.5	<62.5	<25	<62.5	
2-nitrophenol	<5	<62.5	<62.5	<25	<62.5	
2,3-dimethylphenol	<5	<62.5	<62.5	<25	<62.5	
2,4-dichlorophenol	<5	<62.5	<62.5	<25	<62.5	
4-chloro-3-methylphenol	<5	<62.5	<62.5	<25	<62.5	
2,4,6-trichlorophenol	<5	<62.5	<62.5	<25	<62.5	
2,4-dinitrophenol	<15	<187.5	<187.5	<75	<187.5	
4-nitrophenol	<10	<125	<100	<50	<100	
4,6-dinitro-o-cresol	<15	<137.5	<187.5	<75	<187.5	
pentachlorophenol	<10	<100	<100	<50	<100	

(a)Aqueous field blank; concentration units = ppb (ng/ml).

Table III-7. Results of analysis for PCBs in a composite sediment sample collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1	2	3	4	5	6
ANALYSIS DATE:		3/22/86				
MMES SAMPLE ID:		4/28/86				
CLIENT SAMPLE ID:		2605,6,8,9				
NOTE:		RPS comp				
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
aroclor 1016		<1.2				
aroclor 1221		<1.2				
aroclor 1232		<1.2				
aroclor 1242		<1.2				
aroclor 1248		<1.2				
aroclor 1254		<2.4				
aroclor 1260		<2.4				

B. SURFACE WATER

Table III-8. List of samples received 26 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
RPAW	3/22/86	10:10	2588
RPBW	3/22/86	10:30	2589
RPCW	3/22/86	10:40	2591
RPDW	3/22/86	10:55	2592
RPGW	3/22/86	11:55	2594
RPHW	3/22/86	12:10	2595
RPFBW	3/22/86	12:55	2603
RPEW	3/22/86	11:10	2616
RPFW	3/22/86	11:25	2617
RPIW	3/22/86	12:20	2626
RPJW	3/22/86	12:40	2627
RPW	3/22/86	Laboratory composite	2643
RPW	3/22/86	Laboratory composite	2644
RPW	3/22/86	Laboratory composite	2645
RPW	3/22/86	Laboratory composite	2646
RPW	3/22/86	Laboratory composite	2647
RPW	3/22/86	Laboratory composite	2648
RPW	3/22/86	Laboratory composite	2649
RPW	3/22/86	Laboratory composite	2650

Table III-9. Results of analysis for chemical parameters in composite water samples collected 22 March 1986 from the Recycle Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86
UNES SAMPLE ID:	2603	2645	2646	2647	2648	2649
CLIENT SAMPLE ID:	RPFBW	RPW	RPW	RPW	RPW	RPW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	<.017	<.017	.190	NR	NR	NR
free cyanide	<.017	NR (a)	NR	NR	NR	<.017
fluoride	<.05	NR	NR	NR	NR	21.6
arsenic	<.010	NR	NR	<.010	<.010	NR
sodium	16	NR	NR	100	100	NR
sulfate	<0.5	NR	NR	NR	NR	94.4

(a)NR = not requested.

Table III-9. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86					
MMES SAMPLE ID:	2650					
CLIENT SAMPLE ID:	RPM					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	NR					
free cyanide	<.017					
fluoride	NR					
arsenic	NR					
sodium	NR					
sulfate	NR					

Table III-10. Results of analysis for EP toxicity metals in surface composite water samples collected 22 March 1986 from the Recycle Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals					Units: ppb (µg/L)							
MMES ID		2603	2649	(a) 2649	2650	Ext(b) Blank	Prep(c) Blank					
Client ID		RPFBW	RPW	RPW	RPW							
Sample Date		3/22/86	3/22/86	3/22/86	3/22/86							
Metal	Analysis Date											
Arsenic	4/8/86	<200	<200	--(d)	<200	<200	<200					
Barium	4/8/86	<200	<200	--	<200	<200	<200					
Cadmium	4/8/86	<50	<50	--	<50	<50	<50					
Chromium	4/8/86	<50	<50	--	<50	<50	<50					
Lead	4/8/86	<200	<200	--	<200	<200	<200					
Mercury	4/4/86	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3					
Selenium	4/8/86	<200	<200	--	<200	<200	<200					
Silver	4/8/86	<50	<50	--	<50	<50	<50					

(a) Digestion duplicate analysis.

(b) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(c) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(d) Sample not analyzed for this parameter.

Table III-11. Results of analysis for volatile organic compounds in surface water samples collected 22 March 1986 from the Recycle Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86	3/22/86
ANALYSIS DATE:	4/4/86	4/4/86	4/4/86	4/5/86	4/5/86	4/5/86
MMES SAMPLE ID:	2603	2588	2589	2591	2592	2616
CLIENT SAMPLE ID:	RPFBW	RPAW	RPBW	RPCW	RPDW	RPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table III-11. Continued

SAMPLE DATE:	1-3/22/86	2-3/22/86	3-3/22/86	4-3/22/86	5-3/22/86	6-3/22/86
ANALYSIS DATE:	4/5/86	4/5/86	4/4/86	4/5/86	4/5/86	4/5/86
MMES SAMPLE ID:	2617	2594	2595	2626	2627	
CLIENT SAMPLE ID:	RPFW	RPGW	RPHW	RPIW	RPJW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	
acrylonitrile	<10	<10	<10	<10	<10	
benzene	<5	<5	<5	<5	<5	
bromodichloromethane	<5	<5	<5	<5	<5	
bromoform	<5	<5	<5	<5	<5	
bromomethane	<5	<5	<5	<5	<5	
carbon tetrachloride	<5	<5	<5	<5	<5	
chlorobenzene	<5	<5	<5	<5	<5	
chloroethane	<5	<5	<5	<5	<5	
chloroform	<5	<5	<5	<5	<5	
chloromethane	<5	<5	<5	<5	<5	
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	
dibromochloromethane	<5	<5	<5	<5	<5	
1,1-dichloroethane	<5	<5	<5	<5	<5	
1,2-dichloroethane	<5	<5	<5	<5	<5	
1,1-dichloroethylene	<5	<5	<5	<5	<5	
1,2-dichloropropane	<5	<5	<5	<5	<5	
ethylbenzene	<5	<5	<5	<5	<5	
methylene chloride	<10	<10	<10	<10	<10	
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	
tetrachloroethylene	<5	<5	<5	<5	<5	
toluene	<5	<5	<5	<5	<5	
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	
1,1,1-trichloroethane	<5	<5	<5	<5	<5	
1,1,2-trichloroethane	<5	<5	<5	<5	<5	
trichloroethylene	<5	<5	<5	<5	<5	
vinyl chloride	<5	<5	<5	<5	<5	
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	

Table III-12. Results of analysis for base/neutral extractable compounds in surface water composite samples collected 20 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86	3/20/86			
ANALYSIS DATE:	4/15/86	4/24/86	4/16/86			
MMES SAMPLE ID:	2603	2643	2644			
CLIENT SAMPLE ID:	RPFBW	RPW	RPW			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5	<5			
bis (2-chloroethyl) ether	<5	<5	<5			
1,3-dichlorobenzene	<5	<5	<5			
1,4-dichlorobenzene	<5	<5	<5			
1,2-dichlorobenzene	<5	<5	<5			
bis(2-chloroisopropyl) ether	<5	<5	<5			
N-nitroso-di-N-propylamine	<5	<5	<5			
hexachloroethane	<10	<10	<10			
nitrobenzene	<10	<10	<10			
isophorone	<5	<5	<5			
bis (2-chloroethoxy) methane	<5	<5	<5			
1,2,4-trichlorobenzene	<5	<5	<5			
naphthalene	<5	<5	<5			
hexachlorobutadiene	<5	<5	<5			
hexachlorocyclopentadiene	<10	<10	<10			
2-chloronaphthalene	<5	<5	<5			
dimethylphthalate	<5	<5	<5			
acenaphthalene	<5	<5	<5			
2,6-dinitrotoluene	<10	<10	<10			
acenaphthene	<5	<5	<5			
2,4-dinitrotoluene	<10	<10	<10			
diethylphthalate	<10	<10	<10			
fluorene	<5	<5	<5			
4-chlorophenylphenyl ether	<5	<5	<5			
N-nitrosodiphenylamine	<10	<10	<10			
4-bromophenylphenyl ether	<5	<5	<5			
hexachlorobenzene	<5	<5	<5			
phenanthrene	<5	<5	<5			
anthracene	<5	<5	<5			

Table III-12. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86	3/20/86			
ANALYSIS DATE:	4/15/86	4/24/86	4/16/86			
NMES SAMPLE ID:	2603	2643	2644			
CLIENT SAMPLE ID:	RPFBW	RPW	RPW			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10	<10			
fluoranthene	<5	<5	<5			
benzidine	<200	<200	<200			
pyrene	<5	<5	<5			
butylbenzylphthalate	<10	<10	<10			
3,3'-dichlorobenzidine	<10	<10	<10			
benzo (a) anthracene	<5	<5	<5			
chrysene	<5	<5	<5			
bis (2-ethylhexyl) phthalate	<10	<10	<10			
di-N-octylphthalate	<10	<10	<10			
benzo (b & k) fluoranthenes	<5	<5	<5			
benzo (a) pyrene	<5	<5	<5			
indeno-1,2,3 (c,d) pyrene	<10	<10	<10			
dibenzo (a,h) anthracene	<10	<10	<10			
benzo (g,h,i) perylene	<10	<10	<10			

Table III-13. Results of analysis for acid extractable compounds in surface water composite samples collected 22 March 1986 from the Recycle Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86	3/22/86	3/22/86			
ANALYSIS DATE:	4/15/86	4/24/86	4/16/86			
MMES SAMPLE ID:	2603	2643	2644			
CLIENT SAMPLE ID:	RPFBW	RPW	RPW			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10	<10			
2-chlorophenol	<5	<5	<5			
3-nitrophenol	<5	<5	<5			
2,3-dimethylphenol	<5	<5	<5			
2,4-dichlorophenol	<5	<5	<5			
4-chloro-3-methylphenol	<5	<5	<5			
2,4,6-trichlorophenol	<5	<5	<5			
2,4-dinitrophenol	<15	<15	<15			
4-nitrophenol	<10	<10	<10			
4,6-dinitro-c-cresol	<15	<15	<15			
pentachlorophenol	<10	<10	<10			

Table III-14. Results of analysis for PCBs in composite surface water samples collected 22 March 1986 from the Recycle Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/22/86	3/22/86	3/22/86			
ANALYSIS DATE:	4/13/86	4/17/86	4/23/86			
HWIS SAMPLE ID:	2603	2643	2644			
CLIENT SAMPLE ID:	RPFDW	RPW comp	RPW comp			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
aroclor 1016	<0.5	<0.5	<0.5			
aroclor 1221	<0.5	<0.5	<0.5			
aroclor 1232	<0.5	<0.5	<0.5			
aroclor 1242	<0.5	<0.5	<0.5			
aroclor 1247	<0.5	<0.5	<0.5			
aroclor 1254	<1.0	<1.0	<1.0			
aroclor 1260	<1.0	<1.0	<1.0			

SECTION IV

LINED POND

A. SEDIMENT

Table IV-1. List of samples received 24 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
LPFB	3/20/86	16:30	2462
LPS	3/20/86	14:30	2502
LPS	3/20/86	14:30	2503
LPS	3/20/86	14:30	2509

Table IV-2. Results of analysis for chemical parameters in a sediment sample collected 20 March 1986 from the Lined Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
MMES SAMPLE ID:	LPFB	LPS				
CLIENT SAMPLE ID:	2452	2509				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	NR (b)	62				
total cyanide	NR	NR				
free cyanide	<.010	<.02				
fluoride	<.5	3730				
arsenic	NR	NR				
sodium	NR	NR				
sulfate	NR	NR				

(a) Aqueous field blank; concentration units ppm (mg/L).
(b) NR = not requested.

Table IV-3. Results of analysis for EP toxicity metals in sediment samples collected 20 March 1986 from the Lined Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract

Units: ppb (µg/L)

MMES ID		2462	2509	(a) 2509	Prep(b) Blank	Ext(c) Blank							
Client ID		(d) LPFB	LPS	LPS									
Sample Date		3/20/86	3/20/86	3/20/86									
Metal	Analysis Date												
Arsenic	4/5-18/86	<200	280	270	<200	<200							
Barium	4/5-22/86	<200	<200	<200	<200	<200							
Cadmium	4/5-18/86	<50	81	81	<50	<50							
Chromium	4/5-18/86	<50	<50	<50	<50	<50							
Lead	4/5-18/86	<200	<200	<200	<200	<200							
Mercury	4/4-21/86	<0.3	<0.3	<0.3	<0.3	<0.3							
Selenium	4/5-18/86	<200	<200	<200	<200	<200							
Silver	4/5-18/86	<50	<50	<50	<50	<50							

(a) Extraction duplicate analysis.

(b) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Aqueous field blank.

Table IV-4. Results of analysis for volatile organic compounds in a sediment sample collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:		3/20/86				
ANALYSIS DATE:		4/5/86				
MMES SAMPLE ID:		2503				
CLIENT SAMPLE ID:		LPS				
NOTE:		(a)				
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein		<90				
acrylonitrile		<90				
benzene		<45				
bromodichloromethane		<45				
bromoform		<45				
bromomethane		<45				
carbon tetrachloride		<45				
chlorobenzene		<45				
chloroethane		<45				
chloroform		<45				
chloromethane		<45				
2-chloroethylvinyl ether		<90				
cis-1,3-dichloropropene		<45				
dibromochloromethane		<45				
1,1-dichloroethane		<45				
1,2-dichloroethane		<45				
1,1-dichloroethylene		<45				
1,2-dichloropropane		<45				
ethylbenzene		<45				
methylene chloride		<90				
1,1,2,2-tetrachloroethane		<45				
tetrachloroethylene		<45				
toluene		<45				
trans-1,2-dichloroethylene		<45				
trans-1,3-dichloropropene		<45				
1,1,1-trichloroethane		<45				
1,1,2-trichloroethane		<45				
trichloroethylene		<45				
vinyl chloride		<45				
cis-1,2-dichloroethylene		<45				

(a) Sample diluted 1:9 for analysis.

Table IV-5. Results of analysis for base/neutral extractable compounds in sediment samples collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/30/86	4/19/86				
NMES SAMPLE ID:	2472	2502				
CLIENT SAMPLE ID:	LPFB	LPS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
N-nitroso-dimethylamine	<5	<6.25				
bis (2-chloroethyl) ether	<5	<6.25				
1,3-dichlorobenzene	<5	<6.25				
1,4-dichlorobenzene	<5	<6.25				
1,2-dichlorobenzene	<5	<6.25				
bis(2-chloroisopropyl) ether	<5	<6.25				
N-nitroso-di-N-propylamine	<5	<6.25				
hexachloroethane	<10	<12.5				
nitrobenzene	<10	<12.5				
isophorone	<5	<6.25				
bis (2-chloroethoxy) methane	<5	<6.25				
1,2,4-trichlorobenzene	<5	<6.25				
naphthalene	<5	<6.25				
hexachlorobutadiene	<5	<6.25				
hexachlorocyclopentadiene	<10	<12.5				
2-chloronaphthalene	<5	<6.25				
dimethylphthalate	<5	<6.25				
acenaphthalene	<5	<6.25				
2,6-dinitrotoluene	<10	<12.5				
acenaphthene	<5	<6.25				
2,4-dinitrotoluene	<10	<12.5				
diethylphthalate	<10	<12.5				
fluorene	<5	<6.25				
4-chlorophenylphenyl ether	<5	<6.25				
N-nitrosodiphenylamine	<10	<12.5				
4-bromophenylphenyl ether	<5	<6.25				
hexachlorobenzene	<5	<6.25				
phenanthrene	<5	19				
anthracene	<5	10				

(a)Aqueous field blank; concentration units = ppb (ng/ml).

Table IV-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/30/86	4/19/86				
MUES SAMPLE ID:	2472	2502				
CLIENT SAMPLE ID:	LPFB	LPS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
di-N-butylphthalate	<10	<12.5				
fluoranthene	<5	1460				
benzidine	<200	<250				
pyrene	<5	640				
butylbenzylphthalate	<10	<12.5				
3,3'-dichlorobenzidine	<10	<12.5				
benzo (a) anthracene	<5	1030				
chrysene	<5	1310				
bis (2-ethylhexyl) phthalate	<10	<12.5				
di-N-octylphthalate	<10	<12.5				
benzo (b & k) fluoranthenes	<5	2120				
benzo (a) pyrene	<5	500				
indeno-1,2,3 (c,d) pyrene	<10	290				
dibenzo (a,h) anthracene	<10	110				
benzo (g,h,i) perylene	<10	270				

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table IV-6. Results of analysis for acid extractable compounds in sediment samples collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/20/86	2 3/20/86	3	4	5	6
ANALYSIS DATE:	4/30/86	4/19/86				
MNES SAMPLE ID:	2472	2502				
CLIENT SAMPLE ID:	LPFB	LPS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
phenol	<5	<6.25				
2-chlorophenol	<5	<6.25				
2-nitrophenol	<5	<6.25				
2,3-dimethylphenol	<5	<6.25				
2,4-dichlorophenol	<5	<6.25				
4-chloro-3-methylphenol	<5	<6.25				
2,4,6-trichlorophenol	<5	<6.25				
2,4-dinitrophenol	<15	<18.75				
4-nitrophenol	<10	<12.5				
4,5-dinitro-o-cresol	<15	<18.75				
pentachlorophenol	<10	<12.5				

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table IV-7. Results of analysis for PCBs in a sediment sample collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:		3/20/86				
ANALYSIS DATE:		4/24/86				
MMES SAMPLE ID:		2502				
CLIENT SAMPLE ID:		LPS				
NOTE:						
COMPOUNDS		FINAL CONCENTRATION = ppm (mg/kg)				
aroclor 1016		<1.2				
aroclor 1221		<1.2				
aroclor 1232		<1.2				
aroclor 1242		<1.2				
aroclor 1248		<1.2				
aroclor 1254		<2.4				
aroclor 1260		<2.4				

B. SURFACE WATER

Table IV-8. List of samples received 24 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
LPFB	3/20/86	16:30	2472
LPFB	3/20/86	16:30	2473
LPAW	3/20/86	11:20	2480
LPDW	3/20/86	12:20	2481
LPDW	3/20/86	12:20	2482
LPAW	3/20/86	11:20	2483
LPAW	3/20/86	11:20	2484
LPAW	3/20/86	11:20	-2485
LPDW	3/20/86	12:20	2486
LPDW	3/20/86	12:20	2487
LPDW	3/20/86	11:20	2488
LPDW	3/20/86	12:20	2489
LPCW	3/20/86	12:05	-2490
LPCW	3/20/86	12:05	2491
LPFBW	3/20/86	16:30	-2492
LPFBW	3/20/86	16:30	2493
LPFBW	3/20/86	16:30	2494
LPCW	3/20/86	12:05	2495
LPCW	3/20/86	12:05	2497
LPCW	3/20/86	12:05	2498
LPFBW	3/20/86	16:30	2499
LPFBW	3/20/86	16:30	2500
LPHW	3/20/86	13:45	-2521
LPHW	3/20/86	13:45	2522
LPHW	3/20/86	13:45	2523
LPFW	3/20/86	13:00	-2524
LPFW	3/20/86	13:00	2525
LPFW	3/20/86	13:00	2526
LPHW	3/20/86	13:45	2528
LPHW	3/20/86	13:45	2529
LPHW	3/20/86	13:00	2530
LPFW	3/20/86	13:00	2531
LPEW	3/20/86	12:45	2533
LPEW	3/20/86	12:45	2534
LPIW	3/20/86	13:55	2535
LPIW	3/20/86	13:55	2536
LPEW	3/20/86	12:45	2539
LPEW	3/20/86	12:45	-2540
LPEW	3/20/86	12:45	2541
LPIW	3/20/86	13:55	2542
LPIW	3/20/86	13:55	2543
LPIW	3/20/86	13:55	-2544

Table IV-8. Continued

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
LPGW	3/20/86	13:20	2545
LPGW	3/20/86	13:20	2546
LPBW	3/20/86	11:45	2547
LPBW	3/20/86	11:45	2548
LPGW	3/20/86	13:20	2549
LPBW	3/20/86	11:45	2550
LPGW	3/20/86	13:20	2552
LPGW	3/20/86	13:20	2553
LPBW	3/20/86	11:45	2554
LPBW	3/20/86	11:45	2555
LPW	3/20/86	laboratory composite	2556
LPW	3/20/86	laboratory composite	2557
LPW	3/20/86	laboratory composite	2558
LPW	3/20/86	laboratory composite	2559
LPW	3/20/86	laboratory composite	2560
LPW	3/20/86	laboratory composite	2561
LPW	3/20/86	laboratory composite	2562
LPW	3/20/86	laboratory composite	2563

Table IV-9. Results of analysis for chemical parameters in composite surface water samples collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86	3/20/86	3/20/86	3/20/86	3/20/86
MMES SAMPLE ID:	2492	2493	2494	2556	2558	2559
CLIENT SAMPLE ID:	LPFBW	LPFBW	LPFBW	LPW	LPW	LPW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	NR (a)	<.010	NR	NR	<.010	<.010
free cyanide	<.025	NR	NR	<.025	NR	NR
fluoride	<0.5	NR	NR	31.5	NR	NR
arsenic	NR	NR	<.010	NR	NR	NR
sodium	NR	NR	0.6	NR	NR	NR
sulfate	<1.0	NR	NR	2360	NR	NR

(a)NR = not requested.

Table IV-9. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
WIES SAMPLE ID:	2560	2561				
CLIENT SAMPLE ID:	LPW	LPW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	NR (a)	NR				
free cyanide	NR	NR				
fluoride	NR	NR				
arsenic	.037	.042				
sodium	896	867				
sulfate	NR	NR				

Table IV-10. Results of analysis for EP toxicity metals in composite surface samples collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals		Units: ppb (µg/L)											
MMES ID		2492	2556	(a) 2557	(a) 2557	Prep(b) Blank	Ext (c) Blank						
Client ID		LPFBW	LPW	LPW	LPW								
Sample Date		3/20/86	3/20/86	3/20/86	3/20/86								
Metal	Analysis Date												
Arsenic	4/5/86	<200	<200	--(d)	--	<200	<200						
Barium	4/5/86	<200	<200	<200	--	<200	<200						
Cadmium	4/5/86	<50	<50	--	--	<50	<50						
Chromium	4/5/86	<50	<50	--	--	<50	<50						
Lead	4/5/86	<200	<200	--	--	<200	<200						
Mercury	4/4/86	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3						
Selenium	4/5/86	<200	<200	--	--	<200	<200						
Silver	4/5/86	<50	<50	--	--	<50	<50						

(a) Digestion duplicate analysis.

(b) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Sample not analyzed for this parameter.

Table IV-11. Results of analysis for volatile organic compounds in surface water samples collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/20/86	2 3/20/86	3 3/20/86	4 3/20/86	5 3/20/86	6 3/20/86
ANALYSIS DATE:	3/24/86	3/24/86	3/25/86	3/24/86	4/3/86	3/24/86
MMES SAMPLE ID:	2500	2480	2555	2498	2481	2534
CLIENT SAMPLE ID:	LPFBW	LPAW	LPBW	LPCW	LPDW	LPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	6	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table IV-11. Continued

SAMPLE DATE:	3/20/86	3/20/86	3/20/86	3/20/86		
ANALYSIS DATE:	3/24/86	3/24/86	3/24/86	3/24/86		
MMES SAMPLE ID:	2531	2553	2529	2536		
CLIENT SAMPLE ID:	LPFW	LPGW	LPHW	LPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10		
acrylonitrile	<10	<10	<10	<10		
benzene	<5	<5	<5	<5		
bromodichloromethane	<5	<5	<5	<5		
bromoform	<5	<5	<5	<5		
bromomethane	<5	<5	<5	<5		
carbon tetrachloride	<5	<5	<5	<5		
chlorobenzene	<5	<5	<5	<5		
chloroethane	<5	<5	<5	<5		
chloroform	<5	<5	<5	<5		
chloromethane	<5	<5	<5	<5		
2-chloroethylvinyl ether	<10	<10	<10	<10		
cis-1,3-dichloropropene	<5	<5	<5	<5		
dibromochloromethane	<5	<5	<5	<5		
1,1-dichloroethane	<5	<5	<5	<5		
1,2-dichloroethane	<5	<5	<5	<5		
1,1-dichloroethylene	<5	<5	<5	<5		
1,2-dichloropropane	<5	<5	<5	<5		
ethylbenzene	<5	<5	<5	<5		
methylene chloride	<10	<10	<10	<10		
1,1,2,2-tetrachloroethane	<5	<5	<5	<5		
tetrachloroethylene	<5	<5	<5	<5		
toluene	<5	<5	<5	<5		
trans-1,2-dichloroethylene	<5	<5	<5	<5		
trans-1,3-dichloropropene	<5	<5	<5	<5		
1,1,1-trichloroethane	<5	<5	<5	<5		
1,1,2-trichloroethane	<5	<5	<5	<5		
trichloroethylene	<5	<5	<5	<5		
vinyl chloride	<5	<5	<5	<5		
cis-1,2-dichloroethylene	<5	<5	<5	<5		

Table IV-12. Results of analysis for base/neutral extractable compounds in surface water composite sample collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/15/86	4/15/86				
MMS SAMPLE ID:	2499	2562				
CLIENT SAMPLE ID:	LPFBW	LPW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5				
bis (2-chloroethyl) ether	<5	<5				
1,3-dichlorobenzene	<5	<5				
1,4-dichlorobenzene	<5	<5				
1,2-dichlorobenzene	<5	<5				
bis(2-chloroisopropyl) ether	<5	<5				
N-nitroso-di-N-propylamine	<5	<5				
hexachloroethane	<10	<10				
nitrobenzene	<10	<10				
isophorone	<5	<5				
bis (2-chloroethoxy) methane	<5	<5				
1,2,4-trichlorobenzene	<5	<5				
naphthalene	<5	<5				
hexachlorobutadiene	<5	<5				
hexachlorocyclopentadiene	<10	<10				
2-chloronaphthalene	<5	<5				
dimethylphthalate	<5	<5				
acenaphthalene	<5	<5				
2,6-dinitrotoluene	<10	<10				
acenaphthene	<5	<5				
2,4-dinitrotoluene	<10	<10				
diethylphthalate	<10	<10				
fluorene	<5	<5				
4-chlorophenylphenyl ether	<5	<5				
N-nitrosodiphenylamine	<10	<10				
4-bromophenylphenyl ether	<5	<5				
hexachlorobenzene	<5	<5				
phenanthrene	<5	<5				
anthracene	<5	<5				

Table IV-12. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/15/86	4/15/86				
MRES SAMPLE ID:	2499	2562				
CLIENT SAMPLE ID:	LPFBW	LPW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10				
fluoranthene	<5	<5				
benzidine	<200	<200				
pyrene	<5	<5				
butylbenzylphthalate	<10	<10				
3,3'-dichlorobenzidine	<10	<10				
benzo (a) anthracene	<5	<5				
chrysene	<5	<5				
bis (2-ethylhexyl) phthalate	<10	<10				
di-N-octylphthalate	<10	<10				
benzo (b & k) fluoranthenes	<5	<5				
benzo (a) pyrene	<5	<5				
indeno-1,2,3 (c,d) pyrene	<10	<10				
dibenzo (a,h) anthracene	<10	<10				
benzo (g,h,i) perylene	<10	<10				

Table IV-13. Results of analysis for acid extractable compounds in a surface water composite sample collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/15/86	4/15/86				
MNES SAMPLE ID:	2499	2562				
CLIENT SAMPLE ID:	LPFBW	LPW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10				
2-chlorophenol	<5	<5				
2-nitrophenol	<5	<5				
2,3-dimethylphenol	<5	<5				
2,4-dichlorophenol	<5	<5				
4-chloro-3-methylphenol	<5	<5				
2,4,6-trichlorophenol	<5	<5				
2,4-dinitrophenol	<15	<15				
4-nitrophenol	<10	<10				
4,6-dinitro-o-cresol	<15	<15				
pentachlorophenol	<10	<10				

Table IV-14. Results of analysis for PCBs in a composite surface water sample collected 20 March 1986 from the Lined Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	-1-	-2-	-3-	-4-	-5-	-6-
SAMPLE DATE:	3/20/86	3/20/86				
ANALYSIS DATE:	4/18/86	4/22/86				
UNDS SAMPLE ID:	2499	2562				
CLIENT SAMPLE ID:	LPFBW	LPW comp				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
arcelor 1013	<0.5	<0.5				
arcelor 1221	<0.5	<0.5				
arcelor 1232	<0.5	<0.5				
arcelor 1242	<0.5	<0.5				
arcelor 1243	<0.5	<0.5				
arcelor 1254	<1.0	<1.0				
arcelor 1263	<1.0	<1.0				

SECTION V

NORTH DRAINAGE DITCH

A. SEDIMENT

Table V-1. List of samples received 24 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
NDAS	3/19/86	14:00	2515
NDBS	3/19/86	14:15	2516
NDCS	3/19/86	14:30	2517
NDDS	3/19/86	14:45	2518
NDFBS	3/19/86	15:00	2519
NDES	3/19/86	15:00	2520

Table V-2. Results of analysis for chemical parameters in sediment samples collected 19 March 1986 from the North Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86
WDS SAMPLE ID:	2519	2515	2516	2517	2518	2520
CLIENT SAMPLE ID:	NDFB5	NDAS	NDBS	NDCS	NDDE	NDDE
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	NR (b)	76	53	48	25	55
total cyanide	NR	NR	NR	NR	NR	NR
free cyanide ✓	<.020	<.66	3.5	<1.0	<2.0	<.01
fluoride ✓	<.5	204	139	22	22	172
arsenic	NR	NR	NR	NR	NR	NR
sodium ✓	.361	3030	2720	4150	10,400	1210
sulfate	NR	NR	NR	NR	NR	NR

(a)Aqueous field blank; concentration units = ppm (mg/L).

(b)NR = not requested.

Table V-3. Results of analysis for EP toxicity metals in sediment samples collected 19 March 1986 from the North Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract

Units: ppb ($\mu\text{g/L}$)

MMES ID	2519		2515	(a) 2515	2516	2517	2518	2520	(b) 2520	Prep(c) Blank	Ext(d) Blank	
Client ID	(e) NDFBS		NDAS	NDAS	NDBS	NDCS	NDDS	NDES	NDES			
Sample Date	3/19/86		3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86			
Metal	Analysis Date		Analysis Date									
Arsenic	4/29/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Barium	5/1/86	<200	4/5/86	252	200	361	275	271	244	253	<200	<200
Cadmium	4/29/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	
Chromium	4/29/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	
Lead	4/29/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Mercury	5/2/86	0.37	4/2/86	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Selenium	4/29/86	<200	4/5/86	<200	<200	<200	<200	<200	<200	<200	<200	
Silver	4/29/86	<50	4/5/86	<50	<50	<50	<50	<50	<50	<50	<50	

(a) Extraction duplicate analysis.

(b) Digestion duplicate analysis.

(c) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(d) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(e) Aqueous field blank.

B. SURFACE WATER

Table V-4. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab.ID
NDCW	3/25/86	13:46	2710
NDDW	3/25/86	14:06	2711
NDAW	3/25/86	13:12	2723
NDBW	3/25/86	13:30	2724
NDEW	3/25/86	14:26	2728
NDFBW	3/25/86	14:30	2729

Table V-5. Results of analysis for chemical parameters in surface water samples collected 25 March 1986 from the North Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86
MINES SAMPLE ID:	2729	2723	2724	2710	2711	2722
CLIENT SAMPLE ID:	NDFBW	NDAW	NDBW	NDCW	NDDW	NDEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	<.017	5.15	1.6	.37	.37	.037
free cyanide	<.017	.32	.59	<.017	<.017	<.017
fluoride	<.1	190	196	<10	3.3	3.7
arsenic	<.01	.037	.022	<.01	<.01	<.01
sodium	0.3	513	444	51	33	35
sulfate	<10	146	143	37	33	25

Table V-6. Results of analysis for EP toxicity metals in surface water samples collected 25 March 1986 from the North Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals		Units: ppb (µg/L)							
MMES ID		2729	2723	2724	2710	2711	2728	(a) 2728	Ext(b) Blank
Client ID		NDFBW	NDAW	NDBW	NDCW	NDDW	NDEW	NDEW	
Sample Date		3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	
Metal	Analysis Date								
Arsenic	4/14-17/86	<200	<200	<200	<200	<200	<200	--(c)	<200
Barium	4/14-17/86	<200	<200	<200	<200	<200	<200	--	<200
Cadmium	4/14-17/86	<50	<50	<50	<50	<50	<50	--	<50
Chromium	4/14-17/86	<50	<50	<50	<50	<50	<50	--	<50
Lead	4/14-17/86	<200	<200	<200	<200	<200	<200	--	<200
Mercury	4/21/86	<0.30	<0.30	0.38	<0.30	2.4	0.36	<0.30	<0.30
Selenium	4/14-17/86	<200	<200	<200	<200	<200	<200	--	<200
Silver	4/14-17/86	<50	<50	<50	<50	<50	<50	--	<50

(a) Digestion duplicate analysis.

(b) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(c) Sample not analyzed for this parameter.

Table V-7. Results of analysis for volatile organic compounds in surface water samples collected 25 March 1986 from the North Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86
ANALYSIS DATE:	4/8/86	4/8/86	4/8/86	4/8/86	4/7/86	4/8/86
MMES SAMPLE ID:	2729	2723	2724	2710	2711	2728
CLIENT SAMPLE ID:	NDFBW	NDAW	NDBW	NDCW	NDDW	NDEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table V-8. Results of analysis for base/neutral extractable compounds in surface water samples collected 25 March 1986 from the North Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1- 3/25/86	2- 3/25/86	3- 3/25/86	4- 3/25/86	5- 3/25/86	6- 3/25/86
ANALYSIS DATE:	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86
MMES SAMPLE ID:	2729	2723	2724	2710	2711	2728
CLIENT SAMPLE ID:	NDFBW	NDAW	NDBW	NDCW	NDDW	NDEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5	<5	<5	<5	<5
bis (2-chloroethyl) ether	<5	<5	<5	<5	<5	<5
1,3-dichlorobenzene	<5	<5	<5	<5	<5	<5
1,4-dichlorobenzene	<5	<5	<5	<5	<5	<5
1,2-dichlorobenzene	<5	<5	<5	<5	<5	<5
bis(2-chloroisopropyl) ether	<5	<5	<5	<5	<5	<5
N-nitroso-di-N-propylamine	<5	<5	<5	<5	<5	<5
hexachloroethane	<10	<10	<10	<10	<10	<10
nitrobenzene	<10	<10	<10	<10	<10	<10
isophorone	<5	<5	<5	<5	<5	<5
bis (2-chloroethoxy) methane	<5	<5	<5	<5	<5	<5
1,2,4-trichlorobenzene	<5	<5	<5	<5	<5	<5
naphthalene	<5	<5	<5	<5	<5	<5
hexachlorobutadiene	<5	<5	<5	<5	<5	<5
hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
2-chloronaphthalene	<5	<5	<5	<5	<5	<5
dimethylphthalate	<5	<5	<5	<5	<5	<5
acenaphthalene	<5	<5	<5	<5	<5	<5
2,6-dinitrotoluene	<10	<10	<10	<10	<10	<10
acenaphthene	<5	<5	<5	<5	<5	<5
2,4-dinitrotoluene	<10	<10	<10	<10	<10	<10
diethylphthalate	<10	<10	<10	<10	<10	<10
fluorene	<5	<5	<5	<5	<5	<5
4-chlorophenylphenyl ether	<5	<5	<5	<5	<5	<5
N-nitrosodiphenylamine	<10	<10	<10	<10	<10	<10
4-bromophenylphenyl ether	<5	<5	<5	<5	<5	<5
hexachlorobenzene	<5	<5	<5	<5	<5	<5
phenanthrene	<5	<5	<5	<5	<5	<5
anthracene	<5	<5	<5	<5	<5	<5

Table V-8. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86
ANALYSIS DATE:	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86
MNES SAMPLE ID:	2729	2723	2724	2710	2711	2728
CLIENT SAMPLE ID:	MDFBW	NDAW	NDBW	NDCW	NDDW	NDEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10	<10	<10	<10	<10
fluoranthene	<5	<5	<5	<5	<5	<5
benzidine	<200	<200	<200	<200	<200	<200
pyrene	<5	<5	<5	<5	<5	<5
butylbenzylphthalate	<10	<10	<10	<10	<10	<10
3,3'-dichlorobenzidine	<10	<10	<10	<10	<10	<10
benzo (a) anthracene	<5	<5	<5	<5	<5	<5
chrysene	<5	<5	<5	<5	<5	<5
bis (2-ethylhexyl) phthalate	<10	<10	25	<10	<10	<10
di-N-octylphthalate	<10	<10	<10	<10	<10	<10
benzo (b & k) fluoranthenes	<5	<5	<5	<5	<5	<5
benzo (a) pyrene	<5	<5	<5	<5	<5	<5
indeno-1,2,3 (c,d) pyrene	<10	<10	<10	<10	<10	<10
dibenzo (a,h) anthracene	<10	<10	<10	<10	<10	<10
benzo (g,h,i) perylene	<10	<10	<10	<10	<10	<10

Table V-9. Results of analysis for acid extractable compounds in surface water samples collected 25 March 1986 from the North Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86
ANALYSIS DATE:	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86	4/17/86
MMES SAMPLE ID:	2729	2723	2724	2710	2711	2728
CLIENT SAMPLE ID:	NDFBW	NDAW	NDBW	NDCW	NDDW	NDEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10	<10	<10	<10	<10
2-chlorophenol	<5	<5	<5	<5	<5	<5
2-nitrophenol	<5	<5	<5	<5	<5	<5
2,3-dimethylphenol	<5	<5	<5	<5	<5	<5
2,4-dichlorophenol	<5	<5	<5	<5	<5	<5
4-chloro-3-methylphenol	<5	<5	<5	<5	<5	<5
2,4,6-trichlorophenol	<5	<5	<5	<5	<5	<5
2,4-dinitrophenol	<15	<15	<15	<15	<15	<15
4-nitrophenol	<10	<10	<10	<10	<10	<10
4,6-dinitro-o-cresol	<15	<15	<15	<15	<15	<15
pentachlorophenol	<10	<10	<10	<10	<10	<10

Table V-10. Results of analysis for PCBs in surface water samples collected 25 March 1986 from the North Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/27/86
ANALYSIS DATE:	4/23/86	4/23/86	4/28/86	4/22/86	4/22/86	4/23/86
WBS SAMPLE ID:	2729	2723	2724	2710	2711	2723
CLIENT SAMPLE ID:	NDPBM	NDAM	NDBM	NDCM	NDPM	NDPM
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
arcelor 1010	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
arcelor 1221	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
arcelor 1232	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
arcelor 1242	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
arcelor 1247	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
arcelor 1254	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
arcelor 1255	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

SECTION VI

DISCHARGE CHANNEL

A. SEDIMENT

Table VI-1. List of samples received 24 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
DCFBS	3/19/86	17:00	2467
DCFBS	3/19/86	17:00	2474
DCFBS	3/19/86	17:00	2475
DCAG	3/19/86	16:45	2476
DCBG	3/19/86	16:25	2477
DCCG	3/19/86	16:10	2478
DCAG	3/19/86	16:45	2504
DCBG	3/19/86	16:25	2505
DCCG	3/19/86	16:10	2506
DCDG	3/19/86	15:50	2507
DCEG	3/19/86	17:30	2508
DCAG	3/19/86	16:45	2510
DCBG	3/19/86	16:25	2511
DCCG	3/19/86	16:10	2512
DCDG	3/19/86	15:50	2513
DCEG	3/19/86	17:00	2514
DCDG	3/19/86	15:50	2537
DCEG	3/19/86	17:00	2538

Table VI-2. Results of analysis for chemical parameters in sediment samples collected 19 March 1986 from the Discharge Channel, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86
INNOV SAMPLE ID:	2467	2510	2511	2512	2513	2514
CLIENT SAMPLE ID:	DCFBS	DCAG	DC3G	DCCG	DCDC	DCEG
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	NR (b)	50	48	55	40	41
total cyanide	NR	NR	NR	NR	NR	NR
free cyanide	<.02	<1.0	3.5	2.3	4.7	<1.2
fluoride	<1.0	492	1020	395	1240	767
arsenic	NR	NR	NR	NR	NR	NR
sodium	0.4	2180	4080	8200	7610	3250
sulfate	NR	NR	NR	NR	NR	NR

(a)Aqueous field blank; concentration units = ppm (mg/L).

(b)NR = not requested.

Table VI-3. Results of analysis for EP toxicity metals in sediment samples collected 19 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract						Units: ppb (µg/L)				
MMES ID		2467	2510	(a) 2510	2511	2512	2513	2514	Ext(b) Blank	Prep(c) Blank
Client ID		(d) DCFBS	DCAG	DCAG	DCBG	DCCG	DCDG	DCEG		
Sample Date										
Metal	Analysis Date									
Arsenic	4/5/86	<200	<200	--(e)	<200	<200	<200	<200	<200	<200
Barium	4/5/86	<200	230	--	<200	<200	<200	<200	<200	<200
Cadmium	4/5/86	<50	<50	--	<50	<50	<50	<50	<50	<50
Chromium	4/5/86	<50	<50	--	<50	<50	<50	<50	<50	<50
Lead	4/5/86	<200	<200	--	<200	<200	<200	<200	<200	<200
Mercury	4/2/86	<0.30	0.34	<0.30	0.40	0.37	<0.30	<0.30	<0.30	<0.30
Selenium	4/5/86	<200	<200	--	<200	<200	<200	<200	<200	<200
Silver	4/5/86	<50	<50	--	<50	<50	<50	<50	<50	<50

(a) Digestion duplicate analysis.

(b) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(c) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(d) Aqueous field blank.

(e) Sample not analyzed for this parameter.

Table VI-4. Results of analysis for volatile organic compounds in sediment samples collected 19 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86
ANALYSIS DATE:	4/22/86	4/5/86	4/5/86	4/5/86	4/22/86	4/22/86
MMES SAMPLE ID:	2475	2476	2477	2478	2537	2538
CLIENT SAMPLE ID:	DCFBS	DCAG	DCBG	DCCG	DCDG	DCEG
NOTE:	(a)	(b)	(b)	(b)	(c)	(c)
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein	<10	<90	<90	<90	<100	<100
acrylonitrile	<10	<90	<90	<90	<100	<100
benzene	<5	<45	<45	<45	<50	<50
bromodichloromethane	<5	<45	<45	<45	<50	<50
bromoform	<5	<45	<45	<45	<50	<50
bromomethane	<5	<45	<45	<45	<50	<50
carbon tetrachloride	<5	<45	<45	<45	<50	<50
chlorobenzene	<5	<45	<45	<45	<50	<50
chloroethane	<5	<45	<45	<45	<50	<50
chloroform	<5	<45	<45	<45	<50	<50
chloromethane	<5	<45	<45	<45	<50	<50
2-chloroethylvinyl ether	<10	<90	<90	<90	<100	<100
cis-1,3-dichloropropene	<5	<45	<45	<45	<50	<50
dibromochloromethane	<5	<45	<45	<45	<50	<50
1,1-dichloroethane	<5	<45	<45	<45	<50	<50
1,2-dichloroethane	<5	<45	<45	<45	<50	<50
1,1-dichloroethylene	<5	<45	<45	<45	<50	<50
1,2-dichloropropane	<5	<45	<45	<45	<50	<50
ethylbenzene	<5	<45	<45	<45	<50	<50
methylene chloride	<10	<90	<90	<90	<100	<100
1,1,2,2-tetrachloroethane	<5	<45	<45	<45	<50	<50
tetrachloroethylene	<5	<45	<45	<45	<50	<50
toluene	<5	<45	<45	<45	<50	<50
trans-1,2-dichloroethylene	<5	<45	<45	<45	<50	<50
trans-1,3-dichloropropene	<5	<45	<45	<45	<50	<50
1,1,1-trichloroethane	<5	<45	<45	<45	<50	<50
1,1,2-trichloroethane	<5	<45	<45	<45	<50	<50
trichloroethylene	<5	<45	<45	<45	<50	<50
vinyl chloride	<5	<45	<45	<45	<50	<50
cis-1,2-dichloroethylene	<5	<45	<45	<45	<50	<50

(a) Aqueous field blank; concentration units = ppb (ng/ml).

(b) Sample diluted 1:9 for analysis.

(c) Sample diluted 1:10 for analysis.

Table VI-5. Results of analysis for base/neutral extractable compounds in sediment samples collected 19 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/19/86	2 3/19/86	3 3/19/86	4 3/19/86	5 3/19/86	6 3/19/86
ANALYSIS DATE:	4/15/86	4/23/86	4/23/86	4/24/86	4/23/86	4/23/86
MMES SAMPLE ID:	2474	2504	2505	2506	2507	2508
CLIENT SAMPLE ID:	DCFB5	DCAG	DCBG	DCCG	DCDG	DCEG
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
N-nitroso-dimethylamine	<5	<50	<50	<5	<50	<50
bis (2-chloroethyl) ether	<5	<50	<50	<5	<50	<50
1,3-dichlorobenzene	<5	<50	<50	<5	<50	<50
1,4-dichlorobenzene	<5	<50	<50	<5	<50	<50
1,2-dichlorobenzene	<5	<50	<50	<5	<50	<50
bis(2-chloroisopropyl) ether	<5	<50	<50	<5	<50	<50
N-nitroso-di-n-propylamine	<5	<50	<50	<5	<50	<50
hexachloroethane	<10	<100	<100	<10	<100	<100
nitrobenzene	<10	<100	<100	<10	<100	<100
isophorone	<5	<50	<50	<5	<50	<50
bis (2-chloroethoxy) methane	<5	<50	<50	<5	<50	<50
1,2,4-trichlorobenzene	<5	<50	<50	<5	<50	<50
naphthalene	<5	<50	<50	<5	<50	<50
hexachlorobutadiene	<5	<50	<50	<5	<50	<50
hexachlorocyclopentadiene	<10	<100	<100	<10	<100	<100
2-chloronaphthalene	<5	<50	<50	<5	<50	<50
dimethylphthalate	<5	<50	<50	<5	<50	<50
acenaphthalene	<5	<50	<50	<5	<50	<50
2,6-dinitrotoluene	<10	<100	<100	<10	<100	<100
acenaphthene	<5	<50	<50	<5	<50	<50
2,4-dinitrotoluene	<10	<100	<100	<10	<100	<100
diethylphthalate	<10	<100	<100	<10	<100	<100
fluorene	<5	<50	<50	<5	<50	<50
4-chlorophenylphenyl ether	<5	<50	<50	<5	<50	<50
N-nitrosodiphenylamine	<10	<100	<100	<10	<100	<100
4-bromophenylphenyl ether	<5	<50	<50	<5	<50	<50
hexachlorobenzene	<5	<50	<50	<5	<50	<50
phenanthrene	<5	190	110	10	200	<50
anthracene	<5	54	<50	<5	<50	<50

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table VI-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86
ANALYSIS DATE:	4/15/86	4/23/86	4/23/86	4/24/86	4/23/86	4/23/86
MMES SAMPLE ID:	2474	2504	2505	2506	2507	2508
CLIENT SAMPLE ID:	DCFBS	DCAG	DCBG	DCCG	DCDG	DCEG
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
di-n-butylphthalate	<10	<100	<100	<10	<100	<100
fluoranthene	<5	1020	1540	120	1080	830
benzidine	<200	<2000	<2000	<200	<2000	<2000
pyrene	<5	640	980	100	830	550
butylbenzylphthalate	<10	<100	<100	<10	<100	<100
3,3'-dichlorobenzidine	<10	<100	<100	<10	<100	<100
benzo (a) anthracene	<5	410	460	24	350	280
chrysene	<5	560	610	38	470	430
bis (2-ethylhexyl) phthalate	<10	<100	<100	<10	<100	<100
di-n-octylphthalate	<10	<100	<100	<10	<100	<100
benzo (b & k) fluoranthenes	<5	640	540	30	440	470
benzo (a) pyrene	<5	310	200	<5	180	180
indeno-1,2,3 (c,d) pyrene	<10	210	170	<10	150	150
dibenzo (a,h) anthracene	<10	120	<100	<10	<100	<100
benzo (g,h,i) perylene	<10	320	210	12	210	270

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table VI-6. Results of analysis for acid extractable compounds in sediment samples collected 19 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86	3/19/86
ANALYSIS DATE:	4/15/86	4/23/86	4/23/86	4/24/86	4/23/86	4/23/86
HMES SAMPLE ID:	2474	2504	2505	2506	2507	2508
CLIENT SAMPLE ID:	DCFBS	DCAG	DCBG	DCCG	DCDG	DCEG
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/g)					
phenol	<10	<50	<50	<10	<50	<50
2-chlorophenol	<5	<50	<50	<5	<50	<50
2-nitrophenol	<5	<50	<50	<5	<50	<50
2,3-dimethylphenol	<5	<50	<50	<5	<50	<50
2,4-dichlorophenol	<5	<50	<50	<5	<50	<50
4-chloro-3-methylphenol	<5	<50	<50	<5	<50	<50
2,4,6-trichlorophenol	<5	<50	<50	<5	<50	<50
2,4-dinitrophenol	<15	<150	<150	<15	<150	<150
4-nitrophenol	<10	<100	<100	<10	<100	<100
4,6-dinitro-o-cresol	<15	<150	<150	<15	<150	<150
pentachlorophenol	<10	<100	<100	<10	<100	<100

(a) Aqueous field blank; concentration units = ppb (ng/ml).

B. SURFACE WATER

Table VI-7. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
DCAW	3/25/86	12:30	2707
DCFBW	3/25/86	12:35	2708

Table VI-8. Results of analysis for chemical parameters in a surface water sample collected 25 March 1986 from the Discharge Channel, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86				
UNRES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCF3W	DCAW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	.21	6.5				
free cyanide	<.017	.050				
fluoride	<5	33				
arsenic	<.01	<.01				
sodium	0.20	632				
sulfate	500	66				

Table VI-9. Results of analysis for EP toxicity metals in a surface water sample collected 25 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals					Units: ppb (µg/L)				
MMES ID		2708	2707	Ext(a) Blank					
Client ID		DCFBW	DCAW						
Sample Date		3/25/86	3/25/86						
Metal	Analysis Date								
Arsenic	4/14-17/86	<200	<200	<200					
Barium	4/14-17/86	<200	<200	<200					
Cadmium	4/14-17/86	<50	<50	<50					
Chromium	4/14-17/86	<50	<50	<50					
Lead	4/14-17/86	<200	<200	<200					
Mercury	4/21/86	<0.3	<0.3	<0.3					
Selenium	4/14-17/86	<200	<200	<200					
Silver	4/14-17/86	<50	<50	<50					

(a)Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

Table VI-10. Results of analysis for volatile organic compounds in a surface water sample collected 25 March 1986 from the Discharge Channel, Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/25/86	3/25/86				
ANALYSIS DATE:	4/6/86	4/6/86				
MMES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCFBW	DCAW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10				
acrylonitrile	<10	<10				
benzene	<5	<5				
bromodichloromethane	<5	<5				
bromoform	<5	<5				
bromomethane	<5	<5				
carbon tetrachloride	<5	<5				
chlorobenzene	<5	<5				
chloroethane	<5	<5				
chloroform	<5	<5				
chloromethane	<5	<5				
2-chloroethylvinyl ether	<10	<10				
cis-1,3-dichloropropene	<5	<5				
dibromochloromethane	<5	<5				
1,1-dichloroethane	<5	<5				
1,2-dichloroethane	<5	<5				
1,1-dichloroethylene	<5	<5				
1,2-dichloropropane	<5	<5				
ethylbenzene	<5	<5				
methylene chloride	<10	<10				
1,1,2,2-tetrachloroethane	<5	<5				
tetrachloroethylene	<5	<5				
toluene	<5	<5				
trans-1,2-dichloroethylene	<5	<5				
trans-1,3-dichloropropene	<5	<5				
1,1,1-trichloroethane	<5	<5				
1,1,2-trichloroethane	<5	<5				
trichloroethylene	<5	<5				
vinyl chloride	<5	<5				
cis-1,2-dichloroethylene	<5	<5				

Table VI-11. Results of analysis for base/neutral extractable compounds in a surface water sample collected 25 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86				
ANALYSIS DATE:	4/17/86	4/17/86				
MNES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCFBW	DCAW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5				
bis (2-chloroethyl) ether	<5	<5				
1,3-dichlorobenzene	<5	<5				
1,4-dichlorobenzene	<5	<5				
1,2-dichlorobenzene	<5	<5				
bis(2-chloroisopropyl) ether	<5	<5				
N-nitroso-di-N-propylamine	<5	<5				
hexachloroethane	<10	<10				
nitrobenzene	<10	<10				
isophorone	<5	<5				
bis (2-chloroethoxy) methane	<5	<5				
1,2,4-trichlorobenzene	<5	<5				
naphthalene	<5	<5				
hexachlorobutadiene	<5	<5				
hexachlorocyclopentadiene	<10	<10				
2-chloronaphthalene	<5	<5				
dimethylphthalate	<5	<5				
acenaphthalene	<5	<5				
2,6-dinitrotoluene	<10	<10				
acenaphthene	<5	<5				
2,4-dinitrotoluene	<10	<10				
diethylphthalate	<10	<10				
fluorene	<5	<5				
4-chlorophenylphenyl ether	<5	<5				
N-nitrosodiphenylamine	<10	<10				
4-bromophenylphenyl ether	<5	<5				
hexachlorobenzene	<5	<5				
phenanthrene	<5	<5				
anthracene	<5	<5				

Table VI-11. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86				
ANALYSIS DATE:	4/17/86	4/17/86				
MNES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCFBW	DCAW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10				
fluoranthene	<5	<5				
benzidine	<200	<200				
pyrene	<5	<5				
butylbenzylphthalate	<10	<10				
3,3'-dichlorobenzidine	<10	<10				
benzo (a) anthracene	<5	<5				
chrysene	<5	<5				
bis (2-ethylhexyl) phthalate	<10	<10				
di-N-octylphthalate	<10	<10				
benzo (b & k) fluoranthenes	<5	<5				
benzo (a) pyrene	<5	<5				
indeno-1,2,3 (c,d) pyrene	<10	<10				
dibenzo (a,h) anthracene	<10	<10				
benzo (g,h,i) perylene	<10	<10				

Table VI-12. Results of analysis for acid extractable compounds in a surface water sample collected 25 March 1986 from the Discharge Channel at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86				
ANALYSIS DATE:	4/17/86	4/17/86				
NMES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCFBW	DCAW				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10				
2-chlorophenol	<5	<5				
2-nitrophenol	<5	<5				
2,3-dimethylphenol	<5	<5				
2,4-dichlorophenol	<5	<5				
4-chloro-3-methylphenol	<5	<5				
2,4,6-trichlorophenol	<5	<5				
2,4-dinitrophenol	<15	<15				
4-nitrophenol	<10	<10				
4,6-dinitro-o-cresol	<15	<15				
pentachlorophenol	<10	<10				

Table VI-13. Results of analysis for PCBs in a surface water sample collected 25 March 1986 from the Discharge Channel, Martin Marietta Reduction Facility, The Dalles, Oregon

	-1-	-2-	-3-	-4-	-5-	-5-
SAMPLE DATE:	3/25/86	3/25/86				
ANALYSIS DATE:	4/23/86	4/28/86				
WES SAMPLE ID:	2708	2707				
CLIENT SAMPLE ID:	DCFBM	DCAH				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
arcelor 1016	<0.5	<0.5				
arcelor 1231	<0.5	<0.5				
arcelor 1232	<0.5	<0.5				
arcelor 1242	<0.5	<0.5				
arcelor 1243	<0.5	<0.5				
arcelor 1254	<1.0	<1.0				
arcelor 1260	<1.0	<1.0				

SECTION VII

DUCK POND

A. SEDIMENT

C-101

Table VII-1. List of samples received 26 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
DPCSG	3/24/86	13:13	2621
DPBS	3/24/86	13:27	2622
DPAS	3/24/86	13:45	2632
DPAS	3/24/86	13:45	2633
DPFBS	3/24/86	14:00	2634

Table VII-2. Results of analysis for chemical parameters in sediment samples collected 24 March 1986 from the Duck Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	
WISD SAMPLE ID:	2634	2532	2633	2522	2521	
CLIENT SAMPLE ID:	DPFBS	DPAS	DPAS	DPBS	DPGSS	
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	NR (b)	15	14	14	15	
total cyanide	NR	NR	NR	NR	NR	
free cyanide	<0.33	<2.3	<3.6	<0.5	<0.5	
fluoride	<1.0	75	91	103	544	
arsenic	NR	NR	NR	NR	NR	
cadmium	.20	311	453	1037	1105	
zinc	NR	NR	NR	NR	NR	

(a) Aqueous field blank; concentration units = ppm (mg/L).

(b) NR = not requested.

B. SURFACE WATER

Table VII-3. List of samples received 26 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
DPGW	3/24/86	12:31	2598
DPHW	3/24/86	12:40	2599
DPAW	3/24/86	10:30	2600
DPBW	3/24/86	10:50	2602
DPCW	3/24/86	11:05	2612
DPDW	3/24/86	11:21	2613
DPFBW	3/24/86	14:00	2614
DPIW	3/24/86	12:51	2620
DPEW	3/24/86	11:33	2624
DPFW	3/24/86	11:48	2625

Table VII-4. Results of analysis for chemical parameters in surface water samples collected 24 March 1986 from the Duck Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86
UNITS SAMPLE ID:	2514	2600	2602	2612	2513	2524
CLIENT SAMPLE ID:	DPF3W	DPAW	DPBW	DPCM	DPDM	DPEN
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	<.017	<.017	<.017	<.017	<.017	<.017
free cyanide	<.017	<.017	<.017	<.025	<.017	<.017
fluoride	<1.0	12	11	12	12	12
arsenic	<.01	<.01	<.01	<.01	<.01	<.01
sodium	0.17	21	29	30	23	26
sulfate	<5.0	42	42	43	43	43

Table VII-4. Continued

	1	2	3	4	5	5
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86		
WHS SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFV	DPCW	DPH/I	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	<.017	<.017	<.017	<.017		
free cyanide	<.017	<.017	<.017	<.017		
fluoride	13	12	12	11		
arsenic	<.01	<.01	<.01	<.01		
sodium	26	33	31	25		
sulfate	43	43	42	43		

Table VII-5. Results of analysis for EP toxicity metals in surface water samples collected 24 March 1986 from the Duck Pond at Martin Marietta Reduction Facility, The Dalles, Oregon.

Reported as total metals

Units: ppb (µg/L)

MMES ID		2614	2600	2602	2612	2613	2624	2625	2598	(a) 2598	2599	2620	(a) 2620	Prep(b) Blank	Ext(c) Blank
Client ID		DPPBW	DPAW	DPBW	DPCW	DPDW	DPEW	DPFW	DPGW	DPGW	DPHW	DPIW	DPIW		
Sample Date		3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86		
Metal	Analysis Date														
Arsenic	4/8/86	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--
Barium	4/8/86	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--
Cadmium	4/8/86	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
Chromium	4/8/86	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
Copper	4/8/86	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--
Mercury	4/4/86	1.04	0.74	0.71	0.40	0.93	0.40	0.63	<0.30	--(d)	<0.30	<0.30	<0.30	<0.3	<0.3
Selenium	4/8/86	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--
Silver	4/8/86	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--

(a) Digestion duplicate analysis.

(b) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Sample not analyzed for this parameter.

Table VII-6. Results of analysis for volatile organic compounds in surface water samples collected 24 March 1986 from the Duck Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/24/86	2 3/24/86	3 3/24/86	4 3/24/86	5 3/24/86	6 3/24/86
ANALYSIS DATE:	4/5/86	4/4/86	4/5/86	4/5/86	4/5/86	4/5/86
MMES SAMPLE ID:	2614	2600	2602	2612	2613	2624
CLIENT SAMPLE ID:	DPFBW	DPAW	DPBW	DPCW	DPDW	DPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table VII-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86		
ANALYSIS DATE:	4/5/86	4/5/86	4/4/86	4/5/86		
MMES SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFW	DPGW	DPHW	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10		
acrylonitrile	<10	<10	<10	<10		
benzene	<5	<5	<5	<5		
bromodichloromethane	<5	<5	<5	<5		
bromoform	<5	<5	<5	<5		
bromomethane	<5	<5	<5	<5		
carbon tetrachloride	<5	<5	<5	<5		
chlorobenzene	<5	<5	<5	<5		
chloroethane	<5	<5	<5	<5		
chloroform	<5	<5	<5	<5		
chloromethane	<5	<5	<5	<5		
2-chloroethylvinyl ether	<10	<10	<10	<10		
cis-1,3-dichloropropene	<5	<5	<5	<5		
dibromochloromethane	<5	<5	<5	<5		
1,1-dichloroethane	<5	<5	<5	<5		
1,2-dichloroethane	<5	<5	<5	<5		
1,1-dichloroethylene	<5	<5	<5	<5		
1,2-dichloropropane	<5	<5	<5	<5		
ethylbenzene	<5	<5	<5	<5		
methylene chloride	<10	<10	<10	<10		
1,1,2,2-tetrachloroethane	<5	<5	<5	<5		
tetrachloroethylene	<5	<5	<5	<5		
toluene	<5	<5	<5	<5		
trans-1,2-dichloroethylene	<5	<5	<5	<5		
trans-1,3-dichloropropene	<5	<5	<5	<5		
1,1,1-trichloroethane	<5	<5	<5	<5		
1,1,2-trichloroethane	<5	<5	<5	<5		
trichloroethylene	<5	<5	<5	<5		
vinyl chloride	<5	<5	<5	<5		
cis-1,2-dichloroethylene	<5	<5	<5	<5		

Table VII-7. Results of analysis for base/neutral extractable compounds in surface water samples collected 24 March 1986 from the Duck Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86
ANALYSIS DATE:	4/24/86	4/15/86	4/15/86	4/16/86	4/16/86	4/15/86
MMES SAMPLE ID:	2614	2600	2602	2612	2613	2624
CLIENT SAMPLE ID:	DPFBW	DPAW	DPBW	DPCW	DPDW	DPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5	<5	<5	<5	<5
bis (2-chloroethyl) ether	<5	<5	<5	<5	<5	<5
1,3-dichlorobenzene	<5	<5	<5	<5	<5	<5
1,4-dichlorobenzene	<5	<5	<5	<5	<5	<5
1,2-dichlorobenzene	<5	<5	<5	<5	<5	<5
bis(2-chloroisopropyl) ether	<5	<5	<5	<5	<5	<5
N-nitroso-di-N-propylamine	<5	<5	<5	<5	<5	<5
hexachloroethane	<10	<10	<10	<10	<10	<10
nitrobenzene	<10	<10	<10	<10	<10	<10
isophorone	<5	<5	<5	<5	<5	<5
bis (2-chloroethoxy) methane	<5	<5	<5	<5	<5	<5
1,2,4-trichlorobenzene	<5	<5	<5	<5	<5	<5
naphthalene	<5	<5	<5	<5	<5	<5
hexachlorobutadiene	<5	<5	<5	<5	<5	<5
hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
2-chloronaphthalene	<5	<5	<5	<5	<5	<5
dimethylphthalate	<5	<5	<5	<5	<5	<5
acenaphthalene	<5	<5	<5	<5	<5	<5
2,6-dinitrotoluene	<10	<10	<10	<10	<10	<10
acenaphthene	<5	<5	<5	<5	<5	<5
2,4-dinitrotoluene	<10	<10	<10	<10	<10	<10
diethylphthalate	<10	<10	<10	<10	<10	<10
fluorene	<5	<5	<5	<5	<5	<5
4-chlorophenylphenyl ether	<5	<5	<5	<5	<5	<5
N-nitrosodiphenylamine	<10	<10	<10	<10	<10	<10
4-bromophenylphenyl ether	<5	<5	<5	<5	<5	<5
hexachlorobenzene	<5	<5	<5	<5	<5	<5
phenanthrene	<5	<5	<5	<5	<5	<5
anthracene	<5	<5	<5	<5	<5	<5

Table VII-7. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86
ANALYSIS DATE:	4/24/86	4/15/86	4/15/86	4/16/86	4/16/86	4/16/86
MMES SAMPLE ID:	2614	2600	2602	2612	2613	2624
CLIENT SAMPLE ID:	DPFBW	DPAW	DPBW	DPCW	DPDW	DPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10	<10	<10	<10	<10
fluoranthene	<5	<5	<5	<5	<5	<5
benzidine	<200	<200	<200	<200	<200	<200
pyrene	<5	<5	<5	<5	<5	<5
butylbenzylphthalate	<10	<10	<10	<10	<10	<10
3,3'-dichlorobenzidine	<10	<10	<10	<10	<10	<10
benzo (a) anthracene	<5	<5	<5	<5	<5	<5
chrysene	<5	<5	<5	<5	<5	<5
bis (2-ethylhexyl) phthalate	<10	610 (a)	16	<10	<10	<10
di-N-octylphthalate	<10	<10	<10	<10	<10	<10
benzo (b & k) fluoranthenes	<5	<5	<5	<5	<5	<5
benzo (a) pyrene	<5	<5	<5	<5	<5	<5
indeno-1,2,3 (c,d) pyrene	<10	<10	<10	<10	<10	<10
dibenzo (a,h) anthracene	<10	<10	<10	<10	<10	<10
benzo (g,h,i) perylene	<10	<10	<10	<10	<10	<10

(a) Analysis repeated for confirmation. Possible contaminant from sample collection.

Table VII-7. Continued

SAMPLE DATE:	1- 3/24/86	2- 3/24/86	3- 3/24/86	4- 3/24/86	5-	6-
ANALYSIS DATE:	4/16/86	4/15/86	4/15/86	4/16/86		
MMS SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFW	DPGW	DPHW	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5	<5	<5		
bis (2-chloroethyl) ether	<5	<5	<5	<5		
1,3-dichlorobenzene	<5	<5	<5	<5		
1,4-dichlorobenzene	<5	<5	<5	<5		
1,2-dichlorobenzene	<5	<5	<5	<5		
bis(2-chloroisopropyl) ether	<5	<5	<5	<5		
N-nitroso-di-N-propylamine	<5	<5	<5	<5		
hexachloroethane	<10	<10	<10	<10		
nitrobenzene	<10	<10	<10	<10		
isophorone	<5	<5	<5	<5		
bis (2-chloroethoxy) methane	<5	<5	<5	<5		
1,2,4-trichlorobenzene	<5	<5	<5	<5		
naphthalene	<5	<5	<5	<5		
hexachlorobutadiene	<5	<5	<5	<5		
hexachlorocyclopentadiene	<10	<10	<10	<10		
2-chloronaphthalene	<5	<5	<5	<5		
dimethylphthalate	<5	<5	<5	<5		
acenaphthalene	<5	<5	<5	<5		
2,6-dinitrotoluene	<10	<10	<10	<10		
acenaphthene	<5	<5	<5	<5		
2,4-dinitrotoluene	<10	<10	<10	<10		
diethylphthalate	<10	<10	<10	<10		
fluorene	<5	<5	<5	<5		
4-chlorophenylphenyl ether	<5	<5	<5	<5		
N-nitrosodiphenylamine	<10	<10	<10	<10		
4-bromophenylphenyl ether	<5	<5	<5	<5		
hexachlorobenzene	<5	<5	<5	<5		
phenanthrene	<5	<5	<5	<5		
anthracene	<5	<5	<5	<5		

Table VII-7. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86		
ANALYSIS DATE:	4/16/86	4/15/86	4/15/86	4/16/86		
NMES SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFW	DPGW	DPHW	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10	<10	<10		
fluoranthene	<5	<5	<5	<5		
benzidine	<200	<200	<200	<200		
pyrene	<5	<5	<5	<5		
butylbenzylphthalate	<10	<10	<10	<10		
3,3'-dichlorobenzidine	<10	<10	<10	<10		
benzo (a) anthracene	<5	<5	<5	<5		
chrysene	<5	<5	<5	<5		
bis (2-ethylhexyl) phthalate	<10	84	<10	<10		
di-N-octylphthalate	<10	<10	<10	<10		
benzo (b & k) fluoranthenes	<5	<5	<5	<5		
benzo (a) pyrene	<5	<5	<5	<5		
indeno-1,2,3 (c,d) pyrene	<10	<10	<10	<10		
dibenzo (a,h) anthracene	<10	<10	<10	<10		
benzo (g,h,i) perylene	<10	<10	<10	<10		

Table VII-8. Results of analysis for acid extractable compounds in surface water samples collected 24 March 1986 from the Duck Pond at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86
ANALYSIS DATE:	4/24/86	4/15/86	4/15/86	4/16/86	4/16/86	4/16/86
MMS SAMPLE ID:	2614	2600	2602	2612	2513	2624
CLIENT SAMPLE ID:	DPFBW	DPAW	DPBW	DPCW	DPDW	DPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10	<10	<10	<10	<10
2-chlorophenol	<5	<5	<5	<5	<5	<5
2-nitrophenol	<5	<5	<5	<5	<5	<5
2,3-dimethylphenol	<5	<5	<5	<5	<5	<5
2,4-dichlorophenol	<5	<5	<5	<5	<5	<5
4-chloro-3-methylphenol	<5	<5	<5	<5	<5	<5
2,4,6-trichlorophenol	<5	<5	<5	<5	<5	<5
2,4-dinitrophenol	<15	<15	<15	<15	<15	<15
4-nitrophenol	<10	<10	<10	<10	<10	<10
4,6-dinitro-o-cresol	<15	<15	<15	<15	<15	<15
pentachlorophenol	<10	<10	<10	<10	<10	<10

Table VII-8. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86		
ANALYSIS DATE:	4/16/86	4/15/86	4/15/86	4/16/86		
MMS SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFW	DPGW	DPHW	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10	<10	<10		
2-chlorophenol	<5	<5	<5	<5		
2-nitrophenol	<5	<5	<5	<5		
2,3-dimethylphenol	<5	<5	<5	<5		
2,4-dichlorophenol	<5	<5	<5	<5		
4-chloro-3-methylphenol	<5	<5	<5	<5		
2,4,6-trichlorophenol	<5	<5	<5	<5		
2,4-dinitrophenol	<15	<15	<15	<15		
4-nitrophenol	<10	<10	<10	<10		
4,6-dinitro-o-cresol	<15	<15	<15	<15		
pentachlorophenol	<10	<10	<10	<10		

Table VII-9. Results of analysis for PCBs in surface water samples collected 24 March 1986 from the Duck Pond, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86	3/24/86
ANALYSIS DATE:	4/15/86	4/21/86	4/24/86	4/22/86	4/15/86	4/22/86
AMES SAMPLE ID:	2614	2600	2602	2612	2613	2624
CLIENT SAMPLE ID:	DPFBW	DPAW	DPBW	DPCW	DPDW	DPEW
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
aroclor 1016	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
aroclor 1221	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
aroclor 1232	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
aroclor 1242	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
aroclor 1243	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
aroclor 1254	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
aroclor 1260	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Table VII-9. Continued

SAMPLE DATE:	1-3/24/86	2-3/24/86	3-3/24/86	4-3/24/86	5-	6-
ANALYSIS DATE:	4/23/86	4/17/86	4/22/86	4/15/86		
INER SAMPLE ID:	2625	2598	2599	2620		
CLIENT SAMPLE ID:	DPFW	DPGW	DPHW	DPIW		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
aroclor 1016	<0.5	<0.5	<0.5	<0.5		
aroclor 1221	<0.5	<0.5	<0.5	<0.5		
aroclor 1232	<0.5	<0.5	<0.5	<0.5		
aroclor 1242	<0.5	<0.5	<0.5	<0.5		
aroclor 1243	<0.5	<0.5	<0.5	<0.5		
aroclor 1254	<1.0	<1.0	<1.0	<1.0		
aroclor 1260	<1.0	<1.0	<1.0	<1.0		

SECTION VIII

LANDFILL LEACHATE

A. SURFACE WATER

Table VIII-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta
The Dalles
Sample ID

Martin Marietta
Environmental Systems
Lab ID

LLAW 3/26/86 15:00

2701

LLBW 3/26/86 15:30

2702

LLCW 3/26/86 15:45

2704

LLDW 3/26/86 16:00

2705

LLFB 3/26/86 18:50

2716

Table VIII-2. Results of analysis for chemical parameters in surface water samples collected 26 March 1986 from Landfill Leachate, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	
MMES SAMPLE ID:	2716	2701	2702	2704	2705	
CLIENT SAMPLE ID:	LLFB	LLAW	LLBW	LLCW	LLDW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION - ppm (mg/L)					
total cyanide	.27	10	31	9.4	19	
free cyanide	<.017	.25	.39	.91	1.0	
fluoride	<.1	1490	2090	2440	1740	
arsenic	<0.010	0.151	0.271	0.455	0.182	
sodium	0.3	4270	5780	5900	4780	
sulfate	<10	840	2130	2660	1890	

Table VIII-3. Results of analysis for EP toxicity metals in surface water samples collected 26 March 1986 from Landfill Leachate at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals					Units: ppb (µg/L)				
MMES ID		2716	2701	(a) 2701	2702	2704	(a) 2704	2705	Ext (b) Blank
Client ID		LLFB	LLAW	LLAW	LLBW	LLCW	LLCW	LLDW	
Sample Date		3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	
Metal	Analysis Date								
Arsenic	4/14-23/86	<200	261	230	390	354	--	361	<200
Barium	4/14-17/86	<200	<200	<200	<200	<200	--	<200	<200
Cadmium	4/14-17/86	<50	<50	<50	<50	<50	--	<50	<50
Chromium	4/14-17/86	<50	161	164	87	88	--	73	<50
Lead	4/14-17/86	<200	<200	<200	<200	<200	--	<200	<200
Mercury	4/21/86	0.39	0.69	--(c)	0.38	0.55	0.42	0.36	<0.30
Selenium	4/14-17/86	<200	<200	<200	<200	<200	--	<200	<200
Silver	4/14-17/86	<50	<50	<50	<50	<50	--	<50	<50

(a) Digestion duplicate analysis.

(b) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(c) Sample not analyzed for this parameter.

Table VIII-4. Results of analysis for volatile organic compounds in surface water samples collected 26 March 1986 from Landfill Leachate at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86
ANALYSIS DATE:	4/8/86	4/6/86	4/6/86	4/8/86	4/8/86
MMES SAMPLE ID:	2716	2701	2702	2704	2705
CLIENT SAMPLE ID:	LLFB	LLAW	LLBW	LLCW	LLDW
NOTE:				(a)	(a)
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)				
acrolein	<10	<10	<10	<20	<20
acrylonitrile	<10	<10	<10	<20	<20
benzene	<5	<5	<5	<10	<10
bromodichloromethane	<5	<5	<5	<10	<10
bromoform	<5	<5	<5	<10	<10
bromomethane	<5	<5	<5	<10	<10
carbon tetrachloride	<5	<5	<5	<10	<10
chlorobenzene	<5	<5	<5	<10	<10
chloroethane	<5	<5	<5	<10	<10
chloroform	<5	<5	<5	<10	<10
chloromethane	<5	<5	<5	<10	<10
2-chloroethylvinyl ether	<10	<10	<10	<20	<20
cis-1,3-dichloropropene	<5	<5	<5	<10	<10
dibromochloromethane	<5	<5	<5	<10	<10
1,1-dichloroethane	<5	<5	<5	<10	<10
1,2-dichloroethane	<5	<5	<5	<10	<10
1,1-dichloroethylene	<5	<5	<5	<10	<10
1,2-dichloropropane	<5	<5	<5	<10	<10
ethylbenzene	<5	<5	<5	<10	<10
methylene chloride	<10	<10	<10	<20	<20
1,1,2,2-tetrachloroethane	<5	<5	<5	<10	<10
tetrachloroethylene	<5	<5	<5	<10	<10
toluene	<5	<5	<5	<10	<10
trans-1,2-dichloroethylene	<5	<5	<5	<10	<10
trans-1,3-dichloropropene	<5	<5	<5	<10	<10
1,1,1-trichloroethane	<5	<5	<5	<10	<10
1,1,2-trichloroethane	<5	<5	<5	<10	<10
trichloroethylene	<5	8	<5	<10	<10
vinyl chloride	<5	<5	<5	<10	<10
cis-1,2-dichloroethylene	<5	<5	<5	<10	<10

(a) Sample diluted 1:2 for analysis.

Table VIII-5. Results of analysis for base/neutral extractable compounds in surface water samples collected 26 March 1986 from the Landfill Leachate at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	
ANALYSIS DATE:	4/17/86	4/16/86	4/16/86	4/17/86	4/17/86	
MNES SAMPLE ID:	2716	2701	2702	2704	2705	
CLIENT SAMPLE ID:	LLFB	LLAW	LLBW	LLCW	LLDW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5	<5	<5	<5	
bis (2-chloroethyl) ether	<5	<5	<5	<5	<5	
1,3-dichlorobenzene	<5	<5	<5	<5	<5	
1,4-dichlorobenzene	<5	<5	<5	<5	<5	
1,2-dichlorobenzene	<5	<5	<5	<5	<5	
bis(2-chloroisopropyl) ether	<5	<5	<5	<5	<5	
N-nitroso-di-N-propylamine	<5	<5	<5	<5	<5	
hexachloroethane	<10	<10	<10	<10	<10	
nitrobenzene	<10	<10	<10	<10	<10	
isophorone	<5	<5	<5	<5	<5	
bis (2-chloroethoxy) methane	<5	<5	<5	<5	<5	
1,2,4-trichlorobenzene	<5	<5	<5	<5	<5	
naphthalene	<5	<5	<5	<5	<5	
hexachlorobutadiene	<5	<5	<5	<5	<5	
hexachlorocyclopentadiene	<10	<10	<10	<10	<10	
2-chloronaphthalene	<5	<5	<5	<5	<5	
dimethylphthalate	<5	<5	<5	<5	<5	
acenaphthalene	<5	<5	<5	<5	<5	
2,6-dinitrotoluene	<10	<10	<10	<10	<10	
acenaphthene	<5	<5	<5	<5	<5	
2,4-dinitrotoluene	<10	<10	<10	<10	<10	
diethylphthalate	<10	<10	<10	<10	<10	
fluorene	<5	<5	<5	<5	<5	
4-chlorophenylphenyl ether	<5	<5	<5	<5	<5	
N-nitrosodiphenylamine	<10	<10	<10	<10	<10	
4-bromophenylphenyl ether	<5	<5	<5	<5	<5	
hexachlorobenzene	<5	<5	<5	<5	<5	
phenanthrene	<5	<5	<5	<5	<5	
anthracene	<5	<5	<5	<5	<5	

Table VIII-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	
ANALYSIS DATE:	4/17/86	4/16/86	4/16/86	4/17/86	4/17/86	
NMES SAMPLE ID:	2716	2701	2702	2704	2705	
CLIENT SAMPLE ID:	LLFB	LLAW	LLBW	LLCW	LLDW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di-N-butylphthalate	<10	<10	<10	<10	<10	
fluoranthene	<5	<5	<5	<5	<5	
benzidine	<200	<200	<200	<200	<200	
pyrene	<5	<5	<5	<5	<5	
butylbenzylphthalate	<10	<10	<10	<10	<10	
3,3'-dichlorobenzidine	<10	<10	<10	<10	<10	
benzo (a) anthracene	<5	<5	<5	<5	<5	
chrysene	<5	<5	<5	<5	<5	
bis (2-ethylhexyl) phthalate	<10	<10	16	<10	<10	
di-N-octylphthalate	<10	<10	<10	<10	<10	
benzo (b & k) fluoranthenes	<5	<5	<5	<5	<5	
benzo (a) pyrene	<5	<5	<5	<5	<5	
indeno-1,2,3 (c,d) pyrene	<10	<10	<10	<10	<10	
dibenzo (a,n) anthracene	<10	<10	<10	<10	<10	
benzo (a,h,i) perylene	<10	<10	<10	<10	<10	

Table VIII-6. Results of analysis for acid extractable compounds in surface water samples collected 26 March 1986 from the Landfill Leachate at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/26/86	3/26/86	3/26/86	
ANALYSIS DATE:	4/17/86	4/16/86	4/16/86	4/17/86	4/17/86	
MMES SAMPLE ID:	2716	2701	2702	2704	2705	
CLIENT SAMPLE ID:	LLFB	LLAW	LLBW	LLCW	LLDW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10	<10	<10	<10	
2-chlorophenol	<5	<5	<5	<5	<5	
2-nitrophenol	<5	<5	<5	<5	<5	
2,3-dimethylphenol	<5	<5	<5	<5	<5	
2,4-dichlorophenol	<5	<5	<5	<5	<5	
4-chloro-3-methylphenol	<5	<5	<5	<5	<5	
2,4,6-trichlorophenol	<5	<5	<5	<5	<5	
2,4-dinitrophenol	<15	<15	<15	<15	<15	
4-nitrophenol	<10	<10	<10	<10	<10	
4,6-dinitro-o-cresol	<15	<15	<15	<15	<15	
pentachlorophenol	<10	<10	<10	<10	<10	

Table VIII-7. Results of analysis for PCBs in surface water samples collected 26 March 1986 from Landfill Leachate, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/25/86	3/26/86	3/26/86	
ANALYSIS DATE:	4/16/86	4/24/86	4/22/86	4/28/86	4/21/85	
RES SAMPLE ID:	2716	2701	2702	2704	2705	
CLIENT SAMPLE ID:	LLFB	LLAW	LLSW	LLCW	LLDW	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
arsolene 1016	<0.5	<0.5	<0.5	<0.5	<0.5	
arsolene 1221	<0.5	<0.5	<0.5	<0.5	<0.5	
arsolene 1232	<0.5	<0.5	<0.5	<0.5	<0.5	
arsolene 1242	<0.5	<0.5	<0.5	<0.5	<0.5	
arsolene 1243	<0.5	<0.5	<0.5	<0.5	<0.5	
arsolene 1254	<1.0	<1.0	<1.0	<1.0	<1.0	
arsolene 1250	<1.0	<1.0	<1.0	<1.0	<1.0	

SECTION IX

SURFACE DRAINAGE DITCH

A. SOIL

Table IX-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta
The Dalles
Sample ID

Martin Marietta
Environmental Systems
Lab ID

SDFBS 3/26/86 14:35

2717

SDAS 3/26/86 14:30

2720

Table IX-2. Results of analysis for chemical parameters in a sediment sample from the Surface Drainage Ditch, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
MMMS SAMPLE ID:	2717	2720				
CLIENT SAMPLE ID:	SDFBS	SDAS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% Solids	NR (b)	30				
total cyanide	NR	NR				
free cyanide	<.02	<0.62				
fluoride	<.05	519				
arsenic	NR	NR				
sodium	.313	5,600				
sulfate	NR	NR				

(a)Aqueous field blank; concentration units = ppm (mg/L).

(b)NR = not requested.

Table IX-3. Results of analysis for EP toxicity metals in sediment samples collected 26 March 1986 from the Surface Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract					Units: ppb (µg/L)				
MMES ID		2717	2720	(a) 2720	Prep(b) Blank	Ext(c) Blank			
Client ID		(d) SDFBS	SDAS	SDAS					
Sample Date		3/26/86	3/26/86	3/26/86					
Metal	Analysis Date								
Arsenic	4/18-29/86	<200	<200	<200	<200	<200			
Barium	4/22/86 5/1/86	<200	<200	<200	<200	<200			
Cadmium	4/18-29/86	<50	<50	<50	<50	<50			
Chromium	4/18-29/86	<50	<50	<50	<50	<50			
Lead	4/18-29/86	<200	<200	<200	<200	<200			
Mercury	4/21/86 5/2/86	0.34	<0.30	--(e)	<0.3	<0.3			
Selenium	4/18-29/86	<200	<200	<200	<200	<200			
Silver	4/18-29/86	<50	<50	<50	<50	<50			

(a) Digestion duplicate analysis.

(b) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Aqueous field blank.

(e) Sample not analyzed for this parameter.

Table IX-4. Results of analysis for volatile organic compounds in a sediment sample collected 26 March 1986 from the Surface Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
ANALYSIS DATE:	4/8/86	4/8/86				
MMES SAMPLE ID:	2717	2720				
CLIENT SAMPLE ID:	SDFBS	SDAS				
NOTE:	(a)	(b)				
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/gm)					
acrolein	<10	<50				
acrylonitrile	<10	<50				
benzene	<5	<25				
bromodichloromethane	<5	<25				
bromoform	<5	<25				
bromomethane	<5	<25				
carbon tetrachloride	<5	<25				
chlorobenzene	<5	<25				
chloroethane	<5	<25				
chloroform	<5	<25				
chloromethane	<5	<25				
2-chloroethylvinyl ether	<10	<50				
cis-1,3-dichloropropene	<5	<25				
dibromochloromethane	<5	<25				
1,1-dichloroethane	<5	<25				
1,2-dichloroethane	<5	<25				
1,1-dichloroethylene	<5	<25				
1,2-dichloropropane	<5	<25				
ethylbenzene	<5	<25				
methylene chloride	<10	<50				
1,1,2,2-tetrachloroethane	<5	<25				
tetrachloroethylene	<5	<25				
toluene	<5	<25				
trans-1,2-dichloroethylene	<5	<25				
trans-1,3-dichloropropene	<5	<25				
1,1,1-trichloroethane	<5	<25				
1,1,2-trichloroethane	<5	<25				
trichloroethylene	<5	<25				
vinyl chloride	<5	<25				
cis-1,2-dichloroethylene	<5	<25				

(a) Aqueous field blank; concentration units = ppb (ng/ml).

(b) Sample diluted 1:5 for analysis.

Table IX-5. Results of analysis for base/neutral extractable compounds in a sediment sample collected 26 March 1986 from the Surface Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
ANALYSIS DATE:	4/17/86	4/17/86				
MWES SAMPLE ID:	2717	2720				
CLIENT SAMPLE ID:	SDFBS	SDAS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/g)					
N-nitroso-dimethylamine	<5	<250				
bis (2-chloroethyl) ether	<5	<250				
1,3-dichlorobenzene	<5	<250				
1,4-dichlorobenzene	<5	<250				
1,2-dichlorobenzene	<5	<250				
bis(2-chloroisopropyl) ether	<5	<250				
N-nitroso-di-N-propylamine	<5	<250				
hexachloroethane	<10	<500				
nitrobenzene	<10	<500				
isophorone	<5	<250				
bis (2-chloroethoxy) methane	<5	<250				
1,2,4-trichlorobenzene	<5	<250				
naphthalene	<5	<250				
hexachlorobutadiene	<5	<250				
hexachlorocyclopentadiene	<10	<500				
2-chloronaphthalene	<5	<250				
dimethylphthalate	<5	<250				
acenaphthalene	<5	<250				
2,6-dinitrotoluene	<10	<500				
acenaphthene	<5	<250				
2,4-dinitrotoluene	<10	<500				
diethylphthalate	<10	<500				
fluorene	<5	<250				
4-chlorophenylphenyl ether	<5	<250				
N-nitrosodiphenylamine	<10	<500				
4-bromophenylphenyl ether	<5	<250				
hexachlorobenzene	<5	<250				
phenanthrene	<5	<250				
anthracene	<5	<250				

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table IX-5. Continued

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
ANALYSIS DATE:	4/17/86	4/17/86				
MMS SAMPLE ID:	2717	2720				
CLIENT SAMPLE ID:	SDFBS	SDAS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/g)					
di-n-butylphthalate	<10	<500				
fluoranthene	<5	270				
benzidine	<200	<10,000				
pyrene	<5	280				
butylbenzylphthalate	<10	<500				
3,3'-dichlorobenzidine	<10	<500				
benzo (a) anthracene	<5	270				
chrysene	<5	430				
bis (2-ethylhexyl) phthalate	<10	<500				
di-n-octylphthalate	<10	<500				
benzo (b & k) fluoranthenes	<5	540				
benzo (a) pyrene	<5	<250				
indeno-1,2,3 (c,d) pyrene	<10	<500				
dibenzo (a,h) anthracene	<10	<500				
benzo (3,h,i) perylene	<10	<500				

(a) Aqueous field blank; concentration units = ppb (ng/ml).

Table IX-6. Results of analysis for acid extractable compounds in a sediment sample collected 26 March 1986 from the Surface Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
ANALYSIS DATE:	4/17/86	4/17/86				
MMES SAMPLE ID:	2717	2720				
CLIENT SAMPLE ID:	SDFBS	SDAS				
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/g)					
phenol	<10	<500				
2-chlorophenol	<5	<250				
2-nitrophenol	<5	<250				
2,3-dimethylphenol	<5	<250				
2,4-dichlorophenol	<5	<250				
4-chloro-3-methylphenol	<5	<250				
2,4,6-trichlorophenol	<5	<250				
2,4-dinitrophenol	<15	<750				
4-nitrophenol	<10	<500				
4,6-dinitro-o-cresol	<15	<750				
pentachlorophenol	<10	<500				

(a)Aqueous field blank; concentration units = ppb (ng/ml).

SECTION X

DRAINAGE DITCH

A. SURFACE SOIL

Table X-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
DDASG	3/25/86	11:51	2712
DDBSG	3/25/86	11:55	2713
DDCSG	3/25/86	12:02	2714
DDDSG	3/25/86	12:04	2725
DDESG	3/25/86	12:11	2726
DDFBS	3/25/86	12:15	2727

Table X-2. Results of analysis for chemical parameters in surface soil samples collected 25 March 1986 from the Drainage Ditch at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86	3/25/86
MMES SAMPLE ID:	2727	2712	2713	2714	2725	2726
CLIENT SAMPLE ID:	DDFBS	DDASG	DDBSG	DDCSG	DDDSG	DDESG
NOTE:	(b)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	NR (a)	50	43	64	68	50
total cyanide	NR	NR	NR	NR	NR	NR
free cyanide	<.05	1.3	3.2	<0.73	<0.74	<1.0
fluoride	<0.1	926	271	330	312	416
arsenic	NR	NR	NR	NR	NR	NR
sodium	0.7	15,400	1070	5490	5530	9220
sulfate	NR	NR	NR	NR	NR	NR

(a) NR = not requested.

(b) Aqueous field blank; concentration units = ppm (mg/L).

SECTION XI

RIVER ROAD

A. SURFACE SOIL

Table XI-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
RRAS	3/26/86	12:16	2730
RRBS	3/26/86.	11:45	2731

Table XI-2. Results of analysis for chemical parameters in surface soil samples collected 26 March 1986 from River Road, at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86				
MMES SAMPLE ID:	2730	2731				
CLIENT SAMPLE ID:	RRAS	RRBS				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	52	62				
total cyanide	NR (a)	NR				
free cyanide	<.96	<.81				
fluoride	232	156				
arsenic	NR	NR				
sodium	3520	1430				
sulfate	NR	NR				

(a)NR = not requested.

SECTION XII

METAL PAD STORAGE AREA

A. SURFACE SOIL

Table XII-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta
The Dalles
Sample ID

Martin Marietta
Environmental Systems
Lab ID

MPAS 3/26/86 12:46

2733

Table XII-2. Results of analysis for chemical parameters in a surface soil sample collected 26 March 1986 from the Metal Pad Storage Area at Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/26/86	2	3	4	5	6
MNES SAMPLE ID:	2733					
CLIENT SAMPLE ID:	MPAS					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	84					
total cyanide	NR (a)					
free cyanide	<.59					
fluoride	465					
arsenic	NR					
sodium	10,100					
sulfate	NR					

(a)NR = not requested

SECTION XIII

OLD CATHODE WASH AREA
(SURFACE SOIL)

Table XIII-1. List of samples received 28 March 1986 and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID			Martin Marietta Environmental Systems Lab ID
OCS	3/26/86	17:30	2718
OCFBS	3/26/86	17:30	2719
OCAS	3/26/86	14:00	2732

Table XIII-2. Results of analysis for chemical parameters in surface soil samples collected 26 March 1986 from the Old Cathode Wash Area, Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/26/86	3/26/86	3/26/86			
MINES SAMPLE ID:	2719	2732	2718			
CLIENT SAMPLE ID:	OCFBS	OCAS	OCS			
NOTE:	(a)					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
solids	NR (b)	75	89			
total cyanide	NR	NR	NR			
free cyanide	<.01	4.4	23			
fluoride	<.05	67.3	475			
arsenic	<.01	NR	<40			
sodium	NR	3704	7919			
sulfate	NR	NR	NR			

(a)Aqueous field blank; concentration units = ppm (mg/L).

(b)NR = not requested.

SECTION XIV

TRIP BLANKS

A. LABORATORY WATER

Table XIV-1. List of trip blanks and corresponding lab tracking numbers

Martin Marietta The Dalles Sample ID		Martin Marietta Environmental Systems Lab ID
TB 2.5	3/20/86	2463
TB 2.3	3/20/86	2464
TB 2.4	3/20/86	2465
TB 2.6	3/20/86	2466
TB 11	3/20/86	2468
TB 2.1	3/20/86	2469
TB 2.7	3/20/86	2470
TB 2.8	3/20/86	2471
TB 8	3/20/86	2479
TB 12	3/20/86	2496
TB 17	3/20/86	2501
TB 15	3/20/86	2527
TB 2	3/20/86	2532
TB 13	3/20/86	2551
TB 4	3/22/86	2590
TB 7	3/22/86	2593
TB 9	3/22/86	2596
TB 20	3/24/86	2597
TB 22	3/24/86	2601
TB 6	3/22/86	2607
TB 21	3/24/86	2611
TB 1	3/24/86	2615

Table XIV-1. Continued

Martin Marietta The Dalles Sample ID		Martin Marietta Environmental Systems Lab ID
TB 10	3/22/86	2618
TB 19	3/24/86	2619
TB 23	3/24/86	2623
TB 5	3/22/86	2628
TB 1.6	3/22/86	2629
TB 1.7	3/22/86	2630
TB 1.8	3/22/86	2631
TB 14	3/26/86	2700
TB 16	3/26/86	2703
TB 18	3/26/86	2706
TB 25	3/25/86	2709
TB 24	3/26/86	2715
TB 28	3/25/86	2721
TB 27	3/25/86	2722
TB 3	3/28/86	2797
TB 29	3/28/86	2803

Table XIV-2. Results of analysis for chemical parameters in trip blanks received from the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86	3/20/86	3/20/86	3/20/86		
UNES SAMPLE ID:	2615	2464	2465	2463		
CLIENT SAMPLE ID:	TRP BLNK 1	TR BLK 2.3	TR BLK 2.4	TR BLK 2.5		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
total cyanide	<.017	NR (a)	NR	<.010		
free cyanide	<.017	NR	<.01	NR		
fluoride	<1.0	NR	<0.5	NR		
arsenic	<.010	<.010	NR	NR		
sodium	0.28	0.5	NR	NR		
sulfate	<0.5	NR	<1.0	NR		

(a)NR = not requested.

Table XIV-3. Results of analysis for EP toxicity metals in trip blanks received from Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP TOX extract					Units: ppb (µg/L)				
MMES ID		2615	(a) 2615	2645	Prep(b) Blank	Ext(c) Blank			
Client ID		TB 1.3	TB 1.3	TB 2.4					
Sample Date		3/24/86	3/24/86	3/20/86					
Metal	Analysis Date								
Arsenic	4/5-8/86	<200	--(d)	<200	<200	<200			
Barium	4/5-8/86	<200	--	<200	<200	<200			
Cadmium	4/5-8/86	<50	--	<50	<50	<50			
Chromium	4/5-8/86	<50	--	<50	<50	<50			
Lead	4/5-8/86	<200	--	<200	<200	<200			
Mercury	4/2-4/86	0.57	0.62	<0.30	<0.30	<0.30			
Selenium	4/5-8/86	<200	--	<200	<200	<200			
Silver	4/5-8/86	<50	--	<50	<50	<50			

(a) Digestion duplicate analysis.

(b) Preparation blank = solution produced by performing the analytical preparation method on pure water, thus containing all reagents plus any impurities derived from the preparation process.

(c) Extraction blank = pure water carried through the extraction process, then treated as a preparation blank.

(d) Sample not analyzed for this parameter.

Table XIV-4. Results of analysis for volatile organic compounds in trip blanks received from Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/24/86	3/20/86	3/20/86			
ANALYSIS DATE:	4/5/86	3/24/86	4/22/86			
MMES SAMPLE ID:	2615	2532	2470			
CLIENT SAMPLE ID:	TRP BLNK 1	TR BLK 2	TR BLK 2.7			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10			
acrylonitrile	<10	<10	<10			
benzene	<5	<5	<5			
bromodichloromethane	<5	<5	<5			
bromoform	<5	<5	<5			
bromomethane	<5	<5	<5			
carbon tetrachloride	<5	<5	<5			
chlorobenzene	<5	<5	<5			
chloroethane	<5	<5	<5			
chloroform	<5	<5	<5			
chloromethane	<5	<5	<5			
2-chloroethylvinyl ether	<10	<10	<10			
cis-1,3-dichloropropene	<5	<5	<5			
dibromochloromethane	<5	<5	<5			
1,1-dichloroethane	<5	<5	<5			
1,2-dichloroethane	<5	<5	<5			
1,1-dichloroethylene	<5	<5	<5			
1,2-dichloropropane	<5	<5	<5			
ethylbenzene	<5	<5	<5			
methylene chloride	<10	<10	<10			
1,1,2,2-tetrachloroethane	<5	<5	<5			
tetrachloroethylene	<5	<5	<5			
toluene	<5	<5	<5			
trans-1,2-dichloroethylene	<5	<5	<5			
trans-1,3-dichloropropene	<5	<5	<5			
1,1,1-trichloroethane	<5	<5	<5			
1,1,2-trichloroethane	<5	<5	<5			
trichloroethylene	<5	<5	<5			
vinyl chloride	<5	<5	<5			
cis-1,2-dichloroethylene	<5	<5	<5			

Table XIV-4. Continued

SAMPLE DATE:	1	2	3	4	5	6
		3/28/86	3/22/86	3/22/86	3/22/86	3/22/86
ANALYSIS DATE:		4/9/86	4/4/86	4/5/86	4/4/86	4/4/86
MMES SAMPLE ID:		2797	2590	2628	2607	2593
CLIENT SAMPLE ID:		TRP BLNK 3	TRP BLNK 4	TRP BLNK 5	TRP BLNK 6	TRP BLNK 7
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein		<10	<10	<10	<10	<10
acrylonitrile		<10	<10	<10	<10	<10
benzene		<5	<5	<5	<5	<5
bromodichloromethane		<5	<5	<5	<5	<5
bromoform		<5	<5	<5	<5	<5
bromomethane		<5	<5	<5	<5	<5
carbon tetrachloride		<5	<5	<5	<5	<5
chlorobenzene		<5	<5	<5	<5	<5
chloroethane		<5	<5	<5	<5	<5
chloroform		<5	<5	<5	<5	<5
chloromethane		<5	<5	<5	<5	<5
2-chloroethylvinyl ether		<10	<10	<10	<10	<10
cis-1,3-dichloropropene		<5	<5	<5	<5	<5
dibromochloromethane		<5	<5	<5	<5	<5
1,1-dichloroethane		<5	<5	<5	<5	<5
1,2-dichloroethane		<5	<5	<5	<5	<5
1,1-dichloroethylene		<5	<5	<5	<5	<5
1,2-dichloropropane		<5	<5	<5	<5	<5
ethylbenzene		<5	<5	<5	<5	<5
methylene chloride		<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane		<5	<5	<5	<5	<5
tetrachloroethylene		<5	<5	<5	<5	<5
toluene		<5	<5	<5	<5	<5
trans-1,2-dichloroethylene		<5	<5	<5	<5	<5
trans-1,3-dichloropropene		<5	<5	<5	<5	<5
1,1,1-trichloroethane		<5	<5	<5	<5	<5
1,1,2-trichloroethane		<5	<5	<5	<5	<5
trichloroethylene		<5	<5	<5	<5	<5
vinyl chloride		<5	<5	<5	<5	<5
cis-1,2-dichloroethylene		<5	<5	<5	<5	<5

Table XIV-4. Continued

SAMPLE DATE:	3/20/86	3/22/86	3/22/86	3/20/86	3/20/86	3/20/86
ANALYSIS DATE:	3/25/86	4/4/86	4/5/86	3/24/86	3/25/86	3/25/86
MMES SAMPLE ID:	2479	2596	2618	2468	2496	2551
CLIENT SAMPLE ID:	TRP BLNK 8	TRP BLNK 9	TRP BLK 10	TRP BLK 11	TRP BLK 12	TRP BLK 13
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	7	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table XIV-4. Continued

SAMPLE DATE:	3/26/86	3/20/86	3/26/86	3/20/86	3/26/86	3/24/86
ANALYSIS DATE:	4/6/86	3/24/86	4/6/86	3/25/86	4/6/86	4/5/86
MHES SAMPLE ID:	2700	2527	2703	2501	2706	2619
CLIENT SAMPLE ID:	TRP BLK 14	TRP BLK 15	TRP BLK 16	TRP BLK 17	TRP BLK 18	TRP BLK 19
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table XIV-4. Continued

SAMPLE DATE:	3/24/86	3/24/86	3/24/86	3/24/86	3/26/86	3/25/86
ANALYSIS DATE:	4/4/86	4/5/86	4/4/86	4/5/86	4/8/86	4/6/86
MHES SAMPLE ID:	2597	2611	2601	2623	2715	2709
CLIENT SAMPLE ID:	TRP BLK 20	TRP BLK 21	TRP BLK 22	TRP BLK 23	TRP BLK 24	TRP BLK 25
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10	<10	<10	<10
acrylonitrile	<10	<10	<10	<10	<10	<10
benzene	<5	<5	<5	<5	<5	<5
bromodichloromethane	<5	<5	<5	<5	<5	<5
bromoform	<5	<5	<5	<5	<5	<5
bromomethane	<5	<5	<5	<5	<5	<5
carbon tetrachloride	<5	<5	<5	<5	<5	<5
chlorobenzene	<5	<5	<5	<5	<5	<5
chloroethane	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
chloromethane	<5	<5	<5	<5	<5	<5
2-chloroethylvinyl ether	<10	<10	<10	<10	<10	<10
cis-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethane	<5	<5	<5	<5	<5	<5
1,2-dichloroethane	<5	<5	<5	<5	<5	<5
1,1-dichloroethylene	<5	<5	<5	<5	<5	<5
1,2-dichloropropane	<5	<5	<5	<5	<5	<5
ethylbenzene	<5	<5	<5	<5	<5	<5
methylene chloride	<10	<10	<10	<10	<10	<10
1,1,2,2-tetrachloroethane	<5	<5	<5	<5	<5	<5
tetrachloroethylene	<5	<5	<5	<5	<5	<5
toluene	<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	<5	<5	<5	<5	<5	<5
trichloroethylene	<5	<5	<5	<5	<5	<5
vinyl chloride	<5	<5	<5	<5	<5	<5
cis-1,2-dichloroethylene	<5	<5	<5	<5	<5	<5

Table XIV-4. Continued

SAMPLE DATE:	3/25/86	3/25/86	3/28/86			
ANALYSIS DATE:	4/8/86	4/8/86	4/9/86			
MMES SAMPLE ID:	2722	2721	2803			
CLIENT SAMPLE ID:	TRP BLK 27	TRP BLK 28	TRP BLK 29			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10			
acrylonitrile	<10	<10	<10			
benzene	<5	<5	<5			
bromodichloromethane	<5	<5	<5			
bromoform	<5	<5	<5			
bromomethane	<5	<5	<5			
carbon tetrachloride	<5	<5	<5			
chlorobenzene	<5	<5	<5			
chloroethane	<5	<5	<5			
chloroform	<5	<5	<5			
chloromethane	<5	<5	<5			
2-chloroethylvinyl ether	<10	<10	<10			
cis-1,3-dichloropropene	<5	<5	<5			
dibromochloromethane	<5	<5	<5			
1,1-dichloroethane	<5	<5	<5			
1,2-dichloroethane	<5	<5	<5			
1,1-dichloroethylene	<5	<5	<5			
1,2-dichloropropane	<5	<5	<5			
ethylbenzene	<5	<5	<5			
methylene chloride	<10	<10	<10			
1,1,2,2-tetrachloroethane	<5	<5	<5			
tetrachloroethylene	<5	<5	<5			
toluene	<5	<5	<5			
trans-1,2-dichloroethylene	<5	<5	<5			
trans-1,3-dichloropropene	<5	<5	<5			
1,1,1-trichloroethane	<5	<5	<5			
1,1,2-trichloroethane	<5	<5	<5			
trichloroethylene	<5	<5	<5			
vinyl chloride	<5	<5	<5			
cis-1,2-dichloroethylene	<5	<5	<5			

Table XIV-5. Results of analysis for base/neutral extractable compounds in Trip Blanks collected 20 and 24 March 1986 at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/24/86				
ANALYSIS DATE:	4/15/86	4/16/86				
MNES SAMPLE ID:	2469	2615				
CLIENT SAMPLE ID:	TR BLK 2.7	TR BLK 1.1				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
N-nitroso-dimethylamine	<5	<5				
bis (2-chloroethyl) ether	<5	<5				
1,3-dichlorobenzene	<5	<5				
1,4-dichlorobenzene	<5	<5				
1,2-dichlorobenzene	<5	<5				
bis(2-chloroisopropyl) ether	<5	<5				
N-nitroso-di-N-propylamine	<5	<5				
hexachloroethane	<10	<10				
nitrobenzene	<10	<10				
isophorone	<5	<5				
bis (2-chloroethoxy) methane	<5	<5				
1,2,4-trichlorobenzene	<5	<5				
naphthalene	<5	<5				
hexachlorobutadiene	<5	<5				
hexachlorocyclopentadiene	<10	<10				
2-chloronaphthalene	<5	<5				
dimethylphthalate	<5	<5				
acenaphthalene	<5	<5				
2,6-dinitrotoluene	<10	<10				
acenaphthene	<5	<5				
2,4-dinitrotoluene	<10	<10				
diethylphthalate	<10	<10				
fluorene	<5	<5				
4-chlorophenylphenyl ether	<5	<5				
N-nitrosodiphenylamine	<10	<10				
4-bromophenylphenyl ether	<5	<5				
hexachlorobenzene	<5	<5				
phenanthrene	<5	<5				
anthracene	<5	<5				

Table XIV-5. Continued

SAMPLE DATE:	1 3/20/86	2 3/24/86	3	4	5	6
ANALYSIS DATE:	4/15/86	4/16/86				
MIES SAMPLE ID:	2469	2615				
CLIENT SAMPLE ID:	TR BLK 2.7	TR BLK 1.1				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
di- <i>n</i> -butylphthalate	<10	<10				
fluoranthene	<5	<5				
benzidine	<200	<200				
pyrene	<5	<5				
butylbenzylphthalate	<10	<10				
3,3'-dichlorobenzidine	<10	<10				
benzo (a) anthracene	<5	<5				
chrysene	<5	<5				
bis (2-ethylhexyl) phthalate	<10	<10				
di- <i>n</i> -octylphthalate	<10	<10				
benzo (b & k) fluoranthenes	<5	<5				
benzo (a) pyrene	<5	<5				
indeno-1,2,3 (c,d) pyrene	<10	<10				
dibenzo (a,h) anthracene	<10	<10				
benzo (g,h,i) perylene	<10	<10				

Table XIV-6. Results of analysis for acid extractable compounds in Trip Blanks collected 20 and 24 March 1986 at Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86	3/24/86				
ANALYSIS DATE:	4/15/86	4/16/86				
MMES SAMPLE ID:	2469	2615				
CLIENT SAMPLE ID:	TR BLK 2.7	TR BLK 1.1				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
phenol	<10	<10				
2-chlorophenol	<5	<5				
2-nitrophenol	<5	<5				
2,3-dimethylphenol	<5	<5				
2,4-dichlorophenol	<5	<5				
4-chloro-3-methylphenol	<5	<5				
2,4,5-trichlorophenol	<5	<5				
2,4-dinitrophenol	<15	<15				
4-nitrophenol	<10	<10				
4,6-dinitro-o-cresol	<15	<15				
pentachlorophenol	<10	<10				

Table XIV-7. Results of analysis for PCBs in trip blanks received from the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/24/86					
ANALYSIS DATE:	4/15/86					
MNES SAMPLE ID:	2615					
CLIENT SAMPLE ID:	T.B. 1.1					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
aroclor 1016	<0.5					
aroclor 1221	<0.5					
aroclor 1232	<0.5					
aroclor 1242	<0.5					
aroclor 1248	<0.5					
aroclor 1254	<1.0					
aroclor 1260	<1.0					

RESULTS OF CHEMICAL ANALYSIS OF SOIL SAMPLES
COLLECTED ON 10 MAY 1986 ACCORDING TO THE
WORK PLAN OF THE REMEDIAL INVESTIGATION AND
FEASIBILITY STUDY AT THE MARTIN MARIETTA
REDUCTION FACILITY, THE DALLES, OREGON

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20 June 1986
C-165

INTRODUCTION AND SUMMARY

Martin Marietta Environmental Systems performed the work presented in this report according to the Work Plan (February 1986) for the "Remedial Investigation and Feasibility Study at the Martin Marietta Reduction Facility, The Dalles, Oregon."

On 13 May 1986, Martin Marietta Environmental Systems received 6 soil samples and an aqueous field blank collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon. A list of samples received and corresponding laboratory tracking numbers is shown in Table 1. Additional sample information can be found on the enclosed chain of custody form included as Appendix A.

Samples were analyzed according to methods specified in the Quality Assurance Project Plan of the Remedial Investigation and Feasibility Study (summarized in Appendix B). Results of analyses are presented in Tables 2 through 11. Quality control sample data are contained in Appendix C. Minimum concentration levels reported are based on the contract required detection limits found in the EPA Contract Lab Program statements of work for organics and inorganics (July 1985).

EXECUTIVE SUMMARY

Results of Analysis of Landfill Soil Samples Collected on 10 May 1986
for the "Remedial Investigation and Feasibility Study at the
Martin Marietta Reduction Facility, The Dalles, Oregon"

Parameter	Units	Concentration Range (from five samples)
Free Cyanide	mg/kg, dry wt.	<0.27 - 54
Total Cyanide	mg/kg, dry wt.	0.32 - 70
Sodium	mg/kg, dry wt.	3,440 - 82,200
Fluoride	mg/kg, dry wt.	204 - 2,880
EP Toxicity Test, Metals		
• Arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver	mg/L	All results did not exceed EP Toxicity criteria
<u>Organics</u>		
624 - Volatiles	µg/kg	Not detected
625 - Base Neutral/Acids	mg/kg	279 - 2,406
608 - PCBs	mg/kg	Not detected (report from 1 composite sample)

SUMMARY OF METHODS AND HOLDING TIMES

<u>Parameter</u>	<u>Instrument</u>	<u>Method Reference</u>	<u>Holding Time</u>
VOCs	Finnigan GC/MS	Modified 624/CLP (7/85)	14 days from sampling date
BNAs	Finnigan GC/MS	Modified 625/CLP (7/85)	Extracted within 14 days from sampling date*
PCBs	GC/ECD	Modified 608	Extracted within 14 days from sampling date*
Free cyanide	Spectrophotometer	Std. Meth. 412 B,D,H.	Distillation - 14 days from sampling date
Total cyanide	Spectrophotometer	Modified 335.2/ CLP (7/85)	14 days from sampling date
Fluoride-water	Ion chromatograph	300.0	28 days from sampling date
- sludges/soils	Ion selective elec- trode	340.2 + leaching	28 days from sampling date
Sodium	ICP/flame AA	200.7/273.2	6 months from sampling date
EP tox metals	ICP	SW 846/1310 CLP (metals)	Extraction - ASAP Analysis - 6 months from sampling date

*Samples must be completely analyzed within 40 days of extraction.

B. DATA

SAMPLES COLLECTED 10 MAY 1986

Table 1. List of samples received 13 May 1986 and corresponding laboratory tracking numbers

Martin Marietta Reduction Facility Sample ID			Martin Marietta Environmental Systems Lab ID
LFAS S.E. Quad	5/10/86	1055	3290
LFBS N.E. Quad	5/10/86	1125	3291
LFCS S.W. Quad	5/10/86	1200	3292
Trip Blank #26			3293
LFDS N.W. Quad	5/10/86	1227	3294
LFES N. Central	5/10/86	1300	3295
LFCS Composite	5/10/86	1315	3296
LFFBS Field Blank	5/10/86	1330	3297
LFFBS Field Blank	5/10/86	1330	3298
Trip Blank #30			3299
Trip Blank #36			3300
Trip Blank #37			3301
Trip Blank #38			3302

Table 2. Results of analysis for volatile organic compounds in soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	5/10/86	5/10/86	5/10/86	5/10/86	5/10/86	5/10/86
ANALYSIS DATE:	5/15/86	5/15/86	5/15/86	5/15/86	5/16/86	5/16/86
MMES SAMPLE ID:	3297	3290	3291	3292	3294	3295
CLIENT SAMPLE ID:	LFFBS	LFAS	LFBS	LFCS	LFDS	LFES
NOTE:	*					
COMPOUNDS	FINAL CONCENTRATION = ppb (ug/kg)					
acrolein	<10	<100	<100	<100	<100	<100
acrylonitrile	<10	<100	<100	<100	<100	<100
benzene	<5	<50	<50	<50	<50	<50
bromodichloromethane	<5	<50	<50	<50	<50	<50
bromoform	<5	<50	<50	<50	<50	<50
bromomethane	<5	<50	<50	<50	<50	<50
carbon tetrachloride	<5	<50	<50	<50	<50	<50
chlorobenzene	<5	<50	<50	<50	<50	<50
chloroethane	<5	<50	<50	<50	<50	<50
chloroform	<5	<50	<50	<50	<50	<50
chloromethane	<5	<50	<50	<50	<50	<50
2-chloroethylvinyl ether	<10	<100	<100	<100	<100	<100
cis-1,3-dichloropropene	<5	<50	<50	<50	<50	<50
dibromochloromethane	<5	<50	<50	<50	<50	<50
1,1-dichloroethane	<5	<50	<50	<50	<50	<50
1,2-dichloroethane	<5	<50	<50	<50	<50	<50
1,1-dichloroethylene	<5	<50	<50	<50	<50	<50
1,2-dichloropropane	<5	<50	<50	<50	<50	<50
ethylbenzene	<5	<50	<50	<50	<50	<50
methylene chloride	<10	<100	<100	<100	<100	<100
1,1,2,2-tetrachloroethane	<5	<50	<50	<50	<50	<50
tetrachloroethylene	<5	<50	<50	<50	<50	<50
toluene	<5	<50	<50	<50	<50	<50
trans-1,2-dichloroethylene	<5	<50	<50	<50	<50	<50
trans-1,3-dichloropropene	<5	<50	<50	<50	<50	<50
1,1,1-trichloroethane	<5	<50	<50	<50	<50	<50
1,1,2-trichloroethane	<5	<50	<50	<50	<50	<50
trichloroethylene	<5	<50	<50	<50	<50	<50
vinyl chloride	<5	<50	<50	<50	<50	<50
cis-1,2-dichloroethylene	<5	<50	<50	<50	<50	<50

*Aqueous field blank

Table 3. Results of analysis for volatile organic compounds in aqueous trip blanks accompanying soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	1 3/20/86	2 3/20/86	3 3/20/86	4	5	6
ANALYSIS DATE:	5/15/86	5/15/86	5/16/86			
MNES SAMPLE ID:	3293	3299	3302			
CLIENT SAMPLE ID:	TRIP BLANK	TRIP BLANK	TRIP BLANK			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ng/ml)					
acrolein	<10	<10	<10			
acrylonitrile	<10	<10	<10			
benzene	<5	<5	<5			
bromodichloromethane	<5	<5	<5			
bromoform	<5	<5	<5			
bromomethane	<5	<5	<5			
carbon tetrachloride	<5	<5	<5			
chlorobenzene	<5	<5	<5			
chloroethane	<5	<5	<5			
chloroform	<5	<5	<5			
chloromethane	<5	<5	<5			
2-chloroethylvinyl ether	<10	<10	<10			
cis-1,3-dichloropropene	<5	<5	<5			
dibromochloromethane	<5	<5	<5			
1,1-dichloroethane	<5	<5	<5			
1,2-dichloroethane	<5	<5	<5			
1,1-dichloroethylene	<5	<5	<5			
1,2-dichloropropane	<5	<5	<5			
ethylbenzene	<5	<5	<5			
methylene chloride	<10	<10	<10			
1,1,2,2-tetrachloroethane	<5	<5	<5			
tetrachloroethylene	<5	<5	<5			
toluene	<5	<5	<5			
trans-1,2-dichloroethylene	<5	<5	<5			
trans-1,3-dichloropropene	<5	<5	<5			
1,1,1-trichloroethane	<5	<5	<5			
1,1,2-trichloroethane	<5	<5	<5			
trichloroethylene	<5	<5	<5			
vinyl chloride	<5	<5	<5			
cis-1,2-dichloroethylene	<5	<5	<5			

Table 4. Results of analysis for base/neutral extractable organic compounds in soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86
ANALYSIS DATE:	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86
MMES SAMPLE ID:	3297	3290	3291	3292	3294	3295
CLIENT SAMPLE ID:	LLFBS	LFAS	LFBS	LFCS	LFDS	LFES
NOTE:	*					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
N-nitroso-dimethylamine	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
bis (2-chloroethyl) ether	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
1,3-dichlorobenzene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
1,4-dichlorobenzene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
1,2-dichlorobenzene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
bis(2-chloroisopropyl) ether	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
N-nitroso-di-N-propylamine	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
hexachloroethane	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
nitrobenzene	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
isophorone	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
bis (2-chloroethoxy) methane	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
1,2,4-trichlorobenzene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
naphthalene	<4.2	10	7	7	<4.2	<4.2
hexachlorobutadiene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
hexachlorocyclopentadiene	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
2-chloronaphthalene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
dimethylphthalate	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
acenaphthalene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2,6-dinitrotoluene	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
acenaphthene	<4.2	19	28	<4.2	11	6
2,4-dinitrotoluene	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
diethylphthalate	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
fluorene	<4.2	15	16	5	9	<4.2
4-chlorophenylphenyl ether	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
N-nitrosodiphenylamine	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
4-bromophenylphenyl ether	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
hexachlorobenzene	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
phenanthrene	<4.2	170	180	38	82	73
anthracene	<4.2	19	40	7	11	16

*Aqueous field blank

Table 4. Continued

	1	2	3	4	5	6
SAMPLE DATE:	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86
ANALYSIS DATE:	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86
MMES SAMPLE ID:	3297	3290	3291	3292	3294	3295
CLIENT SAMPLE ID:	LLFBS	LFAS	LFBS	LFCS	LFDS	LFES
NOTE:	*					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
di-N-butylphthalate	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
fluoranthene	5.0	340	240	48	150	100
benzidine	<168	<168	<168	<168	<168	<168
pyrene	5.3	260	200	37	120	95
butylbenzylphthalate	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
3,3'-dichlorobenzidine	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
benzo (a) anthracene	<4.2	230	120	22	100	47
chrysene	<4.2	210	110	28	110	58
bis (2-ethylhexyl) phthalate	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
di-N-octylphthalate	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
benzo (b & k) fluoranthenes	<4.2	440	210	36	210	79
benzo (a) pyrene	<4.2	200	120	22	110	45
indeno-1,2,3 (c,d) pyrene	<8.4	210	110	15	100	42
dibenzo (a,h) anthracene	<8.4	83	40	<8.4	36	13
benzo (g,h,i) perylene	<8.4	200	96	14	91	37

cPAHs
 1 out of 6 samples
 exceeds the criterion (175 ppm)
 for Total PAHs, but not
 for cPAHs
 no see previous page,

cPAHs = 123
 Total PAHs = 222

Table 5. Results of analysis for base/neutral extractable organic compounds in an aqueous trip blank accompanying soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	3/20/86					
ANALYSIS DATE:	5-15-86					
MMES SAMPLE ID:	3302					
CLIENT SAMPLE ID:	TRIP BLANK					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/mL)					
N-nitroso-dimethylamine	<4.2					
bis (2-chloroethyl) ether	<4.2					
1,3-dichlorobenzene	<4.2					
1,4-dichlorobenzene	<4.2					
1,2-dichlorobenzene	<4.2					
bis(2-chloroisopropyl) ether	<4.2					
N-nitroso-di-N-propylamine	<4.2					
hexachloroethane	<8.4					
nitrobenzene	<8.4					
isophorone	<4.2					
bis (2-chloroethoxy) methane	<4.2					
1,2,4-trichlorobenzene	<4.2					
naphthalene	<4.2					
hexachlorobutadiene	<4.2					
hexachlorocyclopentadiene	<8.4					
2-chloronaphthalene	<4.2					
dimethylphthalate	<4.2					
acenaphthalene	<4.2					
2,6-dinitrotoluene	<8.4					
acenaphthene	<4.2					
2,4-dinitrotoluene	<8.4					
diethylphthalate	<8.4					
fluorene	<4.2					
4-chlorophenylphenyl ether	<4.2					
N-nitrosodiphenylamine	<8.4					
4-bromophenylphenyl ether	<4.2					
hexachlorobenzene	<4.2					
phenanthrene	<4.2					
anthracene	<4.2					

Table 5. Continued

SAMPLE DATE:	1-3/20/86	2-	3-	4-	5-	6-
ANALYSIS DATE:	5-15-86					
MMES SAMPLE ID:	3302					
CLIENT SAMPLE ID:	TRIP BLANK:					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/mL)					
di-N-butylphthalate	<8.4					
fluoranthene	<4.2					
benzidine	<168					
pyrene	<4.2					
butylbenzylphthalate	<8.4					
3,3'-dichlorobenzidine	<8.4					
benzo (a) anthracene	<4.2					
chrysene	<4.2					
bis (2-ethylhexyl) phthalate	<8.4					
di-N-octylphthalate	<8.4					
benzo (b & k) fluoranthenes	<4.2					
benzo (a) pyrene	<4.2					
indeno-1,2,3 (c,d) pyrene	<8.4					
dibenzo (a,h) anthracene	<8.4					
benzo (g,h,i) perylene	<8.4					

Table 6. Results of analysis for acid extractable organic compounds in soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86	5-10-86
ANALYSIS DATE:	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86	5-15-86
MMES SAMPLE ID:	3297	3290	3291	3292	3294	3295
CLIENT SAMPLE ID:	LLFBS	LFAS	LFBS	LFCS	LFDS	LFES
NOTE:	*					
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
phenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2-chlorophenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2-nitrophenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2,3-dimethylphenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2,4-dichlorophenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
4-chloro-3-methylphenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2,4,6-trichlorophenol	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2,4-dinitrophenol	<12.6	<12.6	<12.6	<12.6	<12.6	<12.6
4-nitrophenol	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4
4,6-dinitro-o-cresol	<12.6	<12.6	<12.6	<12.6	<12.6	<12.6
pentachlorophenol	<8.4	<8.4	<8.4	<8.4	<8.4	<8.4

*Aqueous field blank

Table 7. Results of analysis for acid extractable organic compounds in an aqueous trip blank accompanying soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

SAMPLE DATE:	3/20/86					
ANALYSIS DATE:	5-15-86					
MMES SAMPLE ID:	3302					
CLIENT SAMPLE ID:	TRIP BLANK					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (ug/mL)					
phenol	<4.2					
2-chlorophenol	<4.2					
2-nitrophenol	<4.2					
2,3-dimethylphenol	<4.2					
2,4-dichlorophenol	<4.2					
4-chloro-3-methylphenol	<4.2					
2,4,6-trichlorophenol	<4.2					
2,4-dinitrophenol	<12.6					
4-nitrophenol	<8.4					
4,6-dinitro-o-cresol	<12.6					
pentachlorophenol	<8.4					

Table 8. Results of analysis for PCBs in samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	5-10-86	5-10-86	3-20-86			
ANALYSIS DATE:	5-20-86	5-19-86	5-19-86			
MNES SAMPLE ID:	3296	3298	3302			
CLIENT SAMPLE ID:	LFCGS	LFFBS	TRIP BLANK:			
NOTE:	(a)	(b)	(b)			
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/kg)					
aroclor 1016	<1.2	<1.2	<1.2			
aroclor 1221	<1.2	<1.2	<1.2			
aroclor 1232	<1.2	<1.2	<1.2			
aroclor 1242	<1.2	<1.2	<1.2			
aroclor 1248	<1.2	<1.2	<1.2			
aroclor 1254	<2.4	<2.4	<2.4			
aroclor 1260	<2.4	<2.4	<2.4			

(a) Soil sample composited in field

(b) Aqueous blanks

Table 9. Results of analysis for chemical parameters in soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon (all values reported on dry weight basis)

	1	2	3	4	5	6
SAMPLE DATE:	5/10/86	5/10/86	5/10/86	5/10/86	5/10/86	5/10/86
MNES SAMPLE ID:	3290	3291	3292	3294	3294	3295
CLIENT SAMPLE ID:	LFAS	LFBS	LFCS	LFDS	LFDS	LFES
NOTE:					(a)	
PARAMETERS	FINAL CONCENTRATION = ppm (mg/kg)					
% solids	93	82	88	87	87	81
free cyanide	<0.27	<0.30	<0.28	<0.29	<0.28	54
total cyanide	0.52	0.32	11	1.2	1.7	70
sodium	63,000	66,200	3,440	69,100	69,000	82,200
fluoride	1,160	2,010	204	1,250	(b)	2,880

(a) Duplicate analysis

(b) Sample not analyzed for this parameter

Table 10. Results of analysis for chemical parameters in aqueous blanks associated with soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	5-10-86	5-20-86				
MMES SAMPLE ID:	3297	3300				
CLIENT SAMPLE ID:	FIELD BLK	TRIP BLANK				
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
free cyanide	IS *	IS				
total cyanide	<0.01	IS				
sodium	1.0	1.3				
fluoride	<10	<10				

*Insufficient sample for analysis

Table 11. Results of analysis for EP Toxic metals in soil samples collected on 10 May 1986 from the Landfill at the Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals from EP Toxic extract						Units: ppb (µg/L)				
MMES ID			3290	3291	3292	3294	3294 ^(a)	3295	3300	
Client ID			LFAS	LFBS	LFCS	LFDS	LFDS	LFES	TRIP BLANK	EXT (b) BLANK
Sample Date			05/10/86	05/10/86	05/10/86	05/10/86	05/10/86	05/10/86	03/20/86	
Metal	Method	Analysis Date								
Arsenic	ICP ^(c)	06/02/86	<200	<200	<200	<200	<200	<200	<200	<200
Barium	ICP	05/30/86	<200	<200	234	<200	<200	<200	<200	<200
Cadmium	ICP	06/02/86	<50	<50	<50	<50	<50	<50	<50	<50
Lead	ICP	06/02/86	<200	<200	<200	<200	<200	<200	<200	<200
Chromium	ICP	06/02/86	<50	<50	<50	<50	<50	<50	<50	<50
Mercury	CV ^(d)	06/03/86	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Selenium	ICP	06/03/86	<200	<200	<200	<200	<200	<200	<200	<200
Silver	ICP	06/02/86	<50	<50	<50	<50	<50	<50	<50	<50

(a) Duplicate sample extraction.

(b) Extraction blank (blank water carried through extraction procedure).

(c) Inductively coupled plasma spectrometry.

(d) Cold vapor atomic absorption spectroscopy.

RESULTS OF CHEMICAL ANALYSIS OF
GROUNDWATER SAMPLES COLLECTED
DURING 26 AUGUST TO 4 SEPTEMBER 1986
ACCORDING TO THE WORK PLAN OF THE
REMEDIAL INVESTIGATION AND
FEASIBILITY STUDY AT THE MARTIN
MARIETTA REDUCTION FACILITY,
THE DALLES, OREGON

Prepared for
Martin Marietta
The Dalles Reduction Facility
3313 West 2nd Street
The Dalles, Oregon 97058

Prepared by
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Sampling & Analytical Services
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Columbia, Maryland 21045

1 December 1986

C-183

REPORT SUMMARY

Between 27 August and 8 September 1986, Martin Marietta Environmental Systems received 60 groundwater samples, 6 aqueous field blanks and 43 aqueous trip blanks collected during 26 August to 4 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon. Lists of samples received and corresponding laboratory tracking numbers are shown in the first table of each section. Additional sample information can be found on the enclosed chain of custody forms included as Appendix A.

Samples were analyzed according to methods specified in the Quality Assurance Project Plan of the Remedial Investigation and Feasibility Study (summarized in Appendix B). All samples collected for cyanide analysis were tested for the presence of sulfide according to procedures approved by the EPA site manager.* Data are reported by sample location. Quality control sample data are contained in Appendices C and D. Minimum reported concentration levels are based on the contract required detection limits found in the EPA Contract Laboratory Program statements of work for organics and inorganics (July 1985).

Geraghty and Miller's memo describing the sampling and analytical program is attached as Appendix E. Results are summarized in Table I-1.

*See letter from Norma Lewis, Superfund Site Manager, to Jose R. Bou, Vice President, Martin Marietta Aluminum Properties, Inc., dated 14 August 1986.

Table I-1. Summary of results for groundwater samples collected from the Martin Marietta Reduction Facility, The Dalles, Oregon. Units = ppm (mg/L).

Parameter	Plant Site Monitor Wells	Plant Site Production Wells	Off-Plant Wells
Volatiles- Toluene	ND(a)-0.0063	NR(b)	NR
BNAs -	ND	NR	NR
PCBs -	ND	ND	NR
Metals -			
Copper	ND-0.026	ND	ND
Lead	ND-0.011	ND	ND-0.021
Nickel	ND	ND	ND-0.063
Zinc	ND-0.190	ND-0.066	ND-1.28
Sodium	13-184	23-33	7.4-43
Fluoride -	0.51-12	0.72-1.2	0.38-2.8
Sulfate	8.3-617	21-34	22-194
Total Cyanide	ND-2.4	ND	ND-0.46
Free Cyanide	ND-0.54	ND	ND-0.013

(a) ND = Not detected

(b) NR = Not requested

B. DATA

SAMPLES COLLECTED 26 AUGUST TO 4 SEPTEMBER 1986

1. ON-SITE MONITOR WELLS

Martin Marietta Environmental Systems

Table II-1. List of monitor well samples received from The Dalles Reduction Facility and corresponding laboratory tracking numbers

Martin Marietta Reduction Facility Sample ID	Martin Marietta Environmental Systems Lab ID
MW-1A	0814
MW-1B	0797
MW-1C	0802
MW-2A	0815
MW-2B	0785
MW-3A	0777
MW-3B	0799
MW-3C	0845
MW-4S	0811
MW-4A	0810
MW-5A	0803
MW-6A	0895
MW-6AA	0831
MW-6B	0896
MW-7A	0800
MW-7B	0826
MW-8A	0900
MW-8B	0899
MW-9A	0885
MW-9B	0891
MW-10A	0786/0825
MW-11D	0790
MW-12A	0773
MW-12B	0775
MW-13A	0769
MW-13B	0776
MW-14A	0730
MW-14B	0753
MW-15S	0751
MW-15A	0750
MW-15B	0752
MW-16A	0806
MW-16B	0807
MW-16D	0779
MW-17S	0727
MW-18S	0761
MW-19S	0762
MW-20S	0827
MW-20A	0765
MW-21S	0766

Martin Marietta Environmental Systems

Table II-2. Results of analysis for volatile organic compounds in aqueous samples collected during 26 August to 5 September 1986 from monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

CLIENT SAMPLE ID:	MW-1A	MW-1B	MW-1C	MW-4S	MW-4A
MMES SAMPLE ID:	00814	00797	00802	00811	00810
SAMPLE DATE:	08/29/86	08/28/86	08/28/86	08/28/86	08/28/86
ANALYSIS DATE:	09/03/86	09/02/86	09/02/86	09/03/86	09/03/86
FILE NAME:	3V814	3V797	3V802	3V811	3V810
INSTRUMENT ID:	MS3	MS3	MS3	MS3	MS3
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acrolein	< 10	< 10	< 10	< 10	< 10
Acrylonitrile	< 10	< 10	< 10	< 10	< 10
Benzene	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	< 5	< 5	< 5	< 5	< 5
Bromoform	< 5	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	< 5	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5	< 5
2-Chloroethylvinylether	< 10	< 10	< 10	< 10	< 10
Chloroform	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	< 5	< 5	< 5	< 5	< 5
Toluene	< 5	< 5	6.3	< 5	< 5
Trans-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5
Trichloroethene	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride*	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5

* Any value reported between the instrument detection limit (IDL = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative.

Table II-2. Continued

CLIENT SAMPLE ID:	MW-8A	MW-9A	MW-11D	MW-13A	MW-14A
MMES SAMPLE ID:	00900	00885	00790	00769	00730
SAMPLE DATE:	09/03/86	09/05/86	08/28/86	08/27/86	08/26/86
ANALYSIS DATE:	09/10/86	09/05/86	09/02/86	09/02/86	08/28/86
FILE NAME:	3V900R	3V885	3V790	2V769	2V730
INSTRUMENT ID:	MS3	MS3	MS3	MS3	MS2
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acrolein	< 10	< 10	< 10	< 10	< 10
Acrylonitrile	< 10	< 10	< 10	< 10	< 10
Benzene	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	< 5	< 5	< 5	< 5	< 5
Bromoform	< 5	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	< 5	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5	< 5
2-Chloroethylvinylether	< 10	< 10	< 10	< 10	< 10
Chloroform	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	< 5	< 5	< 5	< 5	< 5
Toluene	< 5	< 5	< 5	< 5	< 5
Trans-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5
Trichloroethene	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride*	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5

Table II-2. Continued

CLIENT SAMPLE ID:	MW-16A	MW-16B	MW-16D	MW-18S	MW-19S
MMES SAMPLE ID:	00806	00807	00779	00761	00762
SAMPLE DATE:	08/28/86	08/28/86	08/27/86	08/26/86	08/26/86
ANALYSIS DATE:	09/03/86	09/03/86	09/02/86	09/02/86	09/02/86
FILE NAME:	3V806	3V807	2V779	3V761	2V762
INSTRUMENT ID:	MS3	MS3	MS3	MS3	MS3
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acrolein	< 10	< 10	< 10	< 10	< 10
Acrylonitrile	< 10	< 10	< 10	< 10	< 10
Benzene	< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	< 5	< 5	< 5	< 5	< 5
Bromoform	< 5	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	< 5	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5	< 5
2-Chloroethylvinylether	< 10	< 10	< 10	< 10	< 10
Chloroform	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	< 5	< 5	< 5	< 5	< 5
Toluene	< 5	< 5	< 5	< 5	< 5
Trans-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5
Trichloroethene	< 5	< 5	< 5	< 5	< 5
Trichlorofluoromethane	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride *	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5
trans-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5

Table II-2. Continued

CLIENT SAMPLE ID:	MW-20S	MW-21S
MMS SAMPLE ID:	00827	00766
SAMPLE DATE:	09/01/86	08/27/86
ANALYSIS DATE:	09/04/86	09/02/86
FILE NAME:	3V827R	2V766
INSTRUMENT ID:	MS3	MS3
MATRIX:	WATER	WATER
UNITS:	ug/l	ug/l
COMPOUNDS		
Acrolein	< 10	< 10
Acrylonitrile	< 10	< 10
Benzene	< 5	< 5
Bromodichloromethane	< 5	< 5
Bromoform	< 5	< 5
Bromomethane	< 5	< 5
Carbon Tetrachloride	< 5	< 5
Chlorobenzene	< 5	< 5
Chloroethane	< 5	< 5
2-Chloroethylvinylether	< 10	< 10
Chloroform	< 5	< 5
Chloromethane	< 5	< 5
Dibromochloromethane	< 5	< 5
1,1-Dichloroethane	< 5	< 5
1,2-Dichloroethane	< 5	< 5
1,1-Dichloroethene	< 5	< 5
1,2-Dichloropropane	< 5	< 5
cis-1,3-Dichloropropene	< 5	< 5
Ethylbenzene	< 5	< 5
Methylene Chloride	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5
Tetrachloroethene	< 5	< 5
Toluene	< 5	< 5
Trans-1,3-Dichloropropene	< 5	< 5
1,1,1-Trichloroethane	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5
Trichloroethene	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Vinyl Chloride*	< 1	< 1
cis-1,2-Dichloroethene	< 5	< 5
trans-1,2-Dichloroethene	< 5	< 5

Martin Marietta Environmental Systems

Table II-3. Results of analysis for base/neutral acid extractable compounds in aqueous samples collected during 26 August to 4 September 1986 from monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

CLIENT SAMPLE ID:	MW-1A	MW-1B	MW-1C	MW-4S	MW-4A
MMES SAMPLE ID:	00814	00797	00802	00811	00810
SAMPLE DATE:	08/29/86	08/28/86	08/28/86	08/28/86	08/28/86
EXTRACTION DATE:	09/03/86	09/03/86	09/03/86	09/03/86	09/03/86
ANALYSIS DATE:	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86
FILE NAME:	BNA814	BNA797	BNA802	BNA811	BNA810
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acenaphthalene	< 10	< 10	< 10	< 10	< 10
Acenaphthene	< 10	< 10	< 10	< 10	< 10
Anthracene	< 10	< 10	< 10	< 10	< 10
Benzidine	< 80	< 80	< 80	< 80	< 80
Benzo(a)Anthracene	< 10	< 10	< 10	< 10	< 10
Benzo(a)Pyrene	< 10	< 10	< 10	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)Perylene	< 10	< 10	< 10	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Butylbenzylphthalate	< 10	< 10	< 10	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10	< 10	< 10	< 10
2-Chloronaphthalene	< 10	< 10	< 10	< 10	< 10
2-Chlorophenol	< 10	< 10	< 10	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Chrysene	< 10	< 10	< 10	< 10	< 10
Di-n-Butylphthalate	< 10	< 10	< 10	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10	< 10	< 10	< 10
Dibenz(a,h)Anthracene	< 10	< 10	< 10	< 10	< 10
1,2-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,4-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,3-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
3,3'-Dichlorobenzidine	< 20	< 20	< 20	< 20	< 20
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10	< 10	< 10
Dimethyl Phthalate	< 10	< 10	< 10	< 10	< 10
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	< 10
4,6-Dinitro-2-Methylphenol	< 50	< 50	< 50	< 50	< 50
2,4-Dinitrophenol	< 50	< 50	< 50	< 50	< 50
2,6-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
2,4-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
1,2-Diphenylhydrazine	< 10	< 10	< 10	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-1A	MW-1B	MW-1C	MW-4S	MW-4A
MMES SAMPLE ID:	00814	00797	00802	00811	00810
SAMPLE DATE:	08/29/86	08/28/86	08/28/86	08/28/86	08/28/86
EXTRACTION DATE:	09/05/86	09/05/86	09/05/86	09/05/86	09/05/86
ANALYSIS DATE:	09/12/86	09/12/86	09/12/86	09/12/86	09/12/86
FILE NAME:	BNAB14	BNA797	BNAB02	BNAB11	BNAB10
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l

COMPOUNDS

Fluoranthene	< 10	< 10	< 10	< 10	< 10
Fluorene	< 10	< 10	< 10	< 10	< 10
Hexachlorobenzene	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	< 10	< 10	< 10	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10	< 10	< 10	< 10
Hexachloroethane	< 10	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10	< 10	< 10	< 10
Isophorone	< 10	< 10	< 10	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10	< 10	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5	< 5	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10	< 10	< 10
Nitrobenzene	< 10	< 10	< 10	< 10	< 10
4-Nitrophenol	< 50	< 50	< 50	< 50	< 50
2-Nitrophenol	< 10	< 10	< 10	< 10	< 10
Pentachlorophenol	< 50	< 50	< 50	< 50	< 50
Phenanthrene	< 10	< 10	< 10	< 10	< 10
Phenol	< 10	< 10	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10	< 10	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-8A	MW-9A	MW-11D	MW-13A	MW-14A
MMES SAMPLE ID:	00900	00885	00790	00769	00720
SAMPLE DATE:	09/03/86	09/03/86	08/28/86	08/27/86	08/26/86
EXTRACTION DATE:	09/09/86	09/09/86	09/05/86	09/03/86	08/29/86
ANALYSIS DATE:	09/15/86	09/16/86	09/12/86	09/06/86	09/05/86
FILE NAME:	BNA900	BNA885	BNA790	BNA769	BNA730
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acenaphthalene	< 10	< 10	< 10	< 10	< 10
Acenaphthene	< 10	< 10	< 10	< 10	< 10
Anthracene	< 10	< 10	< 10	< 10	< 10
Benzidine	< 80	< 80	< 80	< 80	< 80
Benzo(a)Anthracene	< 10	< 10	< 10	< 10	< 10
Benzo(a)Pyrene	< 10	< 10	< 10	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)Perylene	< 10	< 10	< 10	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Butylbenzylphthalate	< 10	< 10	< 10	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10	< 10	< 10	< 10
2-Chloronaphthalene	< 10	< 10	< 10	< 10	< 10
2-Chlorophenol	< 10	< 10	< 10	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Chrysene	< 10	< 10	< 10	< 10	< 10
Di-n-Butylphthalate	< 10	< 10	< 10	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10	< 10	< 10	< 10
Dibenz(a,h)Anthracene	< 10	< 10	< 10	< 10	< 10
1,2-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,4-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,3-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
3,3'-Dichlorobenzidine	< 20	< 20	< 20	< 20	< 20
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10	< 10	< 10
Dimethyl Phthalate	< 10	< 10	< 10	< 10	< 10
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	< 10
4,6-Dinitro-2-Methylphenol	< 50	< 50	< 50	< 50	< 50
2,4-Dinitrophenol	< 50	< 50	< 50	< 50	< 50
2,6-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
2,4-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
1,2-Diphenylhydrazine	< 10	< 10	< 10	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-8A	MW-9A	MW-11D	MW-13A	MW-14A
MMES SAMPLE ID:	00900	00885	00790	00769	00730
SAMPLE DATE:	09/03/86	09/03/86	08/28/86	08/27/86	08/26/86
EXTRACTION DATE:	09/09/86	09/09/86	09/05/86	09/03/86	08/29/86
ANALYSIS DATE:	09/15/86	09/16/86	09/12/86	09/06/86	09/05/86
FILE NAME:	BNA900	BNA885	BNA790	BNA769	BNA730
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Fluoranthene	< 10	< 10	< 10	< 10	< 10
Fluorene	< 10	< 10	< 10	< 10	< 10
Hexachlorobenzene	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	< 10	< 10	< 10	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10	< 10	< 10	< 10
Hexachloroethane	< 10	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10	< 10	< 10	< 10
Isophorone	< 10	< 10	< 10	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10	< 10	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5	< 5	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10	< 10	< 10
Nitrobenzene	< 10	< 10	< 10	< 10	< 10
4-Nitrophenol	< 50	< 50	< 50	< 50	< 50
2-Nitrophenol	< 10	< 10	< 10	< 10	< 10
Pentachlorophenol	< 50	< 50	< 50	< 50	< 50
Phenanthrene	< 10	< 10	< 10	< 10	< 10
Phenol	< 10	< 10	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10	< 10	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-16A	MW-16B	MW-16D	MW-18S	MW-19S
MMES SAMPLE ID:	00806	00807	00779	00761	00762
SAMPLE DATE:	08/28/86	08/28/86	08/27/86	08/26/86	08/26/86
EXTRACTION DATE:	09/05/86	09/05/86	09/03/86	09/03/86	09/03/86
ANALYSIS DATE:	09/12/86	09/12/86	09/11/86	09/11/86	09/06/86
FILE NAME:	BNAB06	BNAB07	BNA779	BNA761R	BNA762
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l
COMPOUNDS					
Acenaphthalene	< 10	< 10	< 10	< 10	< 10
Acenaphthene	< 10	< 10	< 10	< 10	< 10
Anthracene	< 10	< 10	< 10	< 10	< 10
Benzidine	< 80	< 80	< 80	< 80	< 80
Benzo(a)Anthracene	< 10	< 10	< 10	< 10	< 10
Benzo(a)Pyrene	< 10	< 10	< 10	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10	< 10	< 10	< 10
Benzo(g,h,i)Perylene	< 10	< 10	< 10	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Butylbenzylphthalate	< 10	< 10	< 10	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10	< 10	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10	< 10	< 10	< 10
2-Chloronaphthalene	< 10	< 10	< 10	< 10	< 10
2-Chlorophenol	< 10	< 10	< 10	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10	< 10	< 10	< 10
Chrysene	< 10	< 10	< 10	< 10	< 10
Di-n-Butylphthalate	< 10	< 10	< 10	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10	< 10	< 10	< 10
Dibenz(a,h)Anthracene	< 10	< 10	< 10	< 10	< 10
1,2-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,4-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
1,3-Dichlorobenzene	< 10	< 10	< 10	< 10	< 10
3,3'-Dichlorobenzidine	< 20	< 20	< 20	< 20	< 20
2,4-Dichlorophenol	< 10	< 10	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10	< 10	< 10
Dimethyl Phthalate	< 10	< 10	< 10	< 10	< 10
2,4-Dimethylphenol	< 10	< 10	< 10	< 10	< 10
4,6-Dinitro-2-Methylphenol	< 50	< 50	< 50	< 50	< 50
2,4-Dinitrophenol	< 50	< 50	< 50	< 50	< 50
2,6-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
2,4-Dinitrotoluene	< 10	< 10	< 10	< 10	< 10
1,2-Diphenylhydrazine	< 10	< 10	< 10	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-16A	MW-16B	MW-16D	MW-18S	MW-19S
MMES SAMPLE ID:	00806	00807	00779	00761	00762
SAMPLE DATE:	08/28/86	08/28/86	08/27/86	08/26/86	08/26/86
EXTRACTION DATE:	09/05/86	09/05/86	09/03/86	09/03/86	09/03/86
ANALYSIS DATE:	09/12/86	09/12/86	09/11/86	09/11/86	09/06/86
FILE NAME:	BNAB06	BNAB07	BNA779	BNA761R	BNA762
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	ug/l	ug/l	ug/l	ug/l	ug/l

COMPOUNDS

Fluoranthene	< 10	< 10	< 10	< 10	< 10
Fluorene	< 10	< 10	< 10	< 10	< 10
Hexachlorobenzene	< 10	< 10	< 10	< 10	< 10
Hexachlorobutadiene	< 10	< 10	< 10	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10	< 10	< 10	< 10
Hexachloroethane	< 10	< 10	< 10	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10	< 10	< 10	< 10
Isophorone	< 10	< 10	< 10	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10	< 10	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5	< 5	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10	< 10	< 10
Nitrobenzene	< 10	< 10	< 10	< 10	< 10
4-Nitrophenol	< 50	< 50	< 50	< 50	< 50
2-Nitrophenol	< 10	< 10	< 10	< 10	< 10
Pentachlorophenol	< 50	< 50	< 50	< 50	< 50
Phenanthrene	< 10	< 10	< 10	< 10	< 10
Phenol	< 10	< 10	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10	< 10	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10	< 10	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-20S	MW-21S
MMES SAMPLE ID:	00827	00766
SAMPLE DATE:	09/01/86	08/27/86
EXTRACTION DATE:	09/09/86	09/03/86
ANALYSIS DATE:	09/15/86	09/11/86
FILE NAME:	BNA827	BNA766
INSTRUMENT ID:	MS1	MS1
MATRIX:	WATER	WATER
UNITS:	ug/l	ug/l

COMPOUNDS

Acenaphthalene	< 10	< 10
Acenaphthene	< 10	< 10
Anthracene	< 10	< 10
Benzidine	< 80	< 80
Benzo(a)Anthracene	< 10	< 10
Benzo(a)Pyrene	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10
Benzo(g, h, i)Perylene	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10
Butylbenzylphthalate	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10
2-Chloronaphthalene	< 10	< 10
2-Chlorophenol	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10
Chrysene	< 10	< 10
Di-n-Butylphthalate	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10
Dibenz(a, h)Anthracene	< 10	< 10
1,2-Dichlorobenzene	< 10	< 10
1,4-Dichlorobenzene	< 10	< 10
1,3-Dichlorobenzene	< 10	< 10
3,3'-Dichlorobenzidine	< 20	< 20
2,4-Dichlorophenol	< 10	< 10
Diethylphthalate	< 10	< 10
Dimethyl Phthalate	< 10	< 10
2,4-Dimethylphenol	< 10	< 10
4,6-Dinitro-2-Methylphenol	< 50	< 50
2,4-Dinitrophenol	< 50	< 50
2,6-Dinitrotoluene	< 10	< 10
2,4-Dinitrotoluene	< 10	< 10
1,2-Diphenylhydrazine	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10

Table II-3. Continued

CLIENT SAMPLE ID:	MW-20S	MW-21S
MMES SAMPLE ID:	00827	00766
SAMPLE DATE:	09/01/86	08/27/86
EXTRACTION DATE:	09/09/86	09/03/86
ANALYSIS DATE:	09/15/86	09/11/86
FILE NAME:	BNAB27	BNA766
INSTRUMENT ID:	MS1	MS1
MATRIX:	WATER	WATER
UNITS:	ug/l	ug/l

COMPOUNDS

Fluoranthene	< 10	< 10
Fluorene	< 10	< 10
Hexachlorobenzene	< 10	< 10
Hexachlorobutadiene	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10
Hexachloroethane	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10
Isophorone	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10
Naphthalene	< 10	< 10
Nitrobenzene	< 10	< 10
4-Nitrophenol	< 50	< 50
2-Nitrophenol	< 10	< 10
Pentachlorophenol	< 50	< 50
Phenanthrene	< 10	< 10
Phenol	< 10	< 10
Pyrene	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10

Table II-4. Results of analysis for PCBs in aqueous samples collected during 26 to 29 August 1986 from monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	8/29/86	8/28/86	8/28/86	8/27/86	8/26/86	
ANALYSIS DATE:	10/2/86	10/6/86	10/2/86	9/30/86	9/17/86	
MMES SAMPLE ID:	0814	0797	0802	0773	0730	
CLIENT SAMPLE ID:	HW-1A	HW-1B	HW-1C	HW-12A	HW-14A	
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ug/L)					
PCB 1016	<0.50	<0.50	<0.50	<0.50	<0.50	
PCB 1221	<0.50	<0.50	<0.50	<0.50	<0.50	
PCB 1232	<0.50	<0.50	<0.50	<0.50	<0.50	
PCB 1242	<0.50	<0.50	<0.50	<0.50	<0.50	
PCB 1248	<0.50	<0.50	<0.50	<0.50	<0.50	
PCB 1254	<1.0	<1.0	<1.0	<1.0	<1.0	
PCB 1260	<1.0	<1.0	<1.0	<1.0	<1.0	

Table II-5. Results of analysis for priority pollutant metals in aqueous samples collected during 26 August to 1 September 1986 from monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals		Units: ppb (µg/L)									
MMES ID		0773	0775	0769	0776	0730	0753	0751	0750	0752	0806
Client ID		MW-12A	MW-12B	MW-13A	MW-13B	MW-14A	MW-14B	MW-15S	MW-15A	MW-15B	MW-16A
Sample Date		8/26/86	8/26/86	8/26/86	8/26/86	8/26/86	8/26/86	8/26/86	8/26/86	8/26/86	8/26/86
Metal	Method										
Antimony	ICP	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Arsenic	Furnace	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Barium	ICP	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Beryllium	ICP	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	ICP	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chromium	ICP	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Copper	ICP	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Lead	Furnace	<10	<10	<10	<10	<10	<10	11	<10	<10	<10
Mercury	Cold Vapor	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Nickel	ICP	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
Selenium	Furnace	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Silver	ICP	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Thallium	ICP	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Zinc	ICP	89	<50	<50	148	71	<50	<50	<50	<50	<50

Table II-5. Continued

Reported as total metals		Units: ppb (µg/L)								
MWES ID		0807	0779	0727	0761	0762	0827	0765	0766	
Client ID		MW-16B	MW-16D	MW-17S	MW-18S	MW-19S	MW-20S	MW-20A	MW-21S	
Sample Date		8/28/86	8/27/86	8/26/86	8/26/86	8/26/86	9/1/86	8/27/86	8/27/86	
Metal	Method									
Antimony	ICP	<200	<200	<200	<200	<200	<200	<200	<200	
Arsenic	Furnace	<50*	<10	<10	<10	<10	<10	<10	<10	
Barium	ICP	<200	<200	<200	588	<200	<200	<200	<200	
Beryllium	ICP	<5	<5	<5	<5	<5	<5	<5	<5	
Cadmium	ICP	<10	<10	<10	<10	<10	<10	<10	<10	
Chromium	ICP	<20	<20	<20	<20	<20	<20	<20	<20	
Copper	ICP	<25	<25	<25	26	<25	<25	<25	<25	
Lead	Furnace	<10	<10	<10	11	<10	<10	<10	<10	
Mercury	Cold Vapor	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	
Nickel	ICP	<40	<40	<40	<40	<40	<40	<40	<40	
Selenium	Furnace	<5	<5	<5	<5	<5	<5	<5	<5	
Silver	ICP	<50	<50	<50	<50	<50	<50	<50	<50	
Thallium	ICP	<500	<500	<500	<500	<500	<500	<500	<500	
Zinc	ICP	51	<50	<50	142	<50	<50	70	190	

*Sample diluted due to matrix interferences.

Table II-6. Results of chemical analysis of aqueous samples collected during 26 August to 4 September 1986 from monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	8/29/86	8/28/86	8/28/86	8/29/86	8/29/86	8/27/86
MMES SAMPLE ID:	0814	0797	0802	0815	0785	0777
CLIENT SAMPLE ID:	MW-1A	MW-1B	MW-1C	MW-2A	MW-2B	MW-3A
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	0.93	1.3	1.0	0.65	0.90	0.97
sulfate	48	22	22	20	80	30
free cyanide	<0.010	<0.010	<0.010	<0.010	0.093	<0.010
total cyanide	<0.010	<0.010	<0.010	0.13	0.57	<0.010
sodium	49	30	27	23	35	24

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Table II-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	8/28/86	9/2/86	8/28/86	8/28/86	8/28/86	9/3/86
MMES SAMPLE ID:	0799	0845	0811	0810	0803	0895
CLIENT SAMPLE ID:	MW-3B	MW-3C	MW-4S	MW-4A	MW-5A	MW-6A
NOTE:						
COMPOUNDS	FINAL CONCENTRATION - ppm (mg/L)					
Fluoride	1.3	0.90	0.83	0.86	0.51	1.1
sulfate	24	24	98	135	37	9.1
free cyanide	<0.010	<0.010	<0.010	<0.010	<0.010	0.23
total cyanide	0.026	0.036	0.049	0.059	<0.010	0.38
sodium	26	28	15	15	17	23

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Table II-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	9/1/86	9/3/86	8/28/86	9/1/86	9/3/86	9/3/86
MMS SAMPLE ID:	0831	0896	0800	0826	0900	0899
CLIENT SAMPLE ID:	MW-6AA	MW-6B	MW-7A	MW-7B	MW-8A	MW-8B
NOTE:						
COMPOUNDS	FINAL CONCENTRATION - ppm (mg/L)					
fluoride	0.97	0.93	1.2	0.71	1.0	1.8
sulfate	8.3	83	18	78	44	67
free cyanide	0.036	0.47	0.086	0.042	0.48	0.19
total cyanide	0.32	1.2	0.46	0.77	1.1	0.48
sodium	24	26	19	22	38	25

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Table II-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	9/3/86	9/4/86	8/29/86	8/28/86	8/27/86	8/27/86
HMES SAMPLE ID:	0885	0891	0786/0825	0790	0773	0775
CLIENT SAMPLE ID:	HW-9A	HW-9B	HW-10A	HW-11D	HW-12A	HW-12B
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	1.4	1.4	0.58	0.77	0.90	0.65
sulfate	40	50	22	24	13	22
free cyanide	0.053	0.54	<0.010	<0.010	0.018	0.010
total cyanide	1.6	1.0	<0.010	<0.010	0.084	0.080
sodium	42	32	24	17	25	16

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Table 11-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	8/27/86	8/27/86	8/26/86	8/26/86	8/26/86	8/26/86
NMES SAMPLE ID:	0769	0776	0730	0753	0751	0750
CLIENT SAMPLE ID:	MW-13A	MW-13B	MW-14A	MW-14B	MW-15S	MW-15A
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	0.85	0.82	1.3	0.86	7.4	1.1
sulfate	20	24	15	73	136	52
free cyanide	<0.010	0.025	<0.010	0.058	0.049	0.049
total cyanide	0.13	0.15	0.026	0.30	0.67	2.4
sodium	20	13	29	24	59	33

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Table II-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	8/26/86	8/28/86	8/28/86	8/27/86	8/26/86	8/26/86
MNES SAMPLE ID:	0752	0806	0807	0779	0727	0761
CLIENT SAMPLE ID:	NW-15B	NW-16A	NW-16B	NW-16D	NW-17S	NW-18S
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	1.0	1.2	4.2	0.68	0.89	12
sulfate	97	22	31	24	143	617
free cyanide	0.052	<0.010	0.030	<0.010	0.024	<0.010
total cyanide	1.5	0.033	1.1	<0.010	0.78	0.050
sodium	22	43	34	17	22	162

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Table II-6. Continued

	1	2	3	4	5	6
SAMPLE DATE:	8/26/86	9/1/86	8/27/86	8/27/86		
MMS SAMPLE ID:	0762	0827	0765	0766		
CLIENT SAMPLE ID:	MW-19S	MW-20S	MW-20A	MW-21S		
NOTE:						
COMPOUNDS	FINAL CONCENTRATION - ppm (mg/L)					
Fluoride	8.9	0.98	1.0	12		
sulfate	573	37	35	74		
free cyanide	<0.010	<0.010	<0.010	<0.010		
total cyanide	<0.010	<0.010	<0.010	<0.010		
sodium	184	39	34	45		

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2. PRODUCTION WELLS

Martin Marietta Environmental Systems

Table III-1. List of samples received from production wells at The Dalles Reduction Facility and corresponding laboratory tracking numbers

Martin Marietta Reduction Facility Sample ID	Martin Marietta Environmental Systems Lab ID
PW-1	0839
PW-3	0823
PW-4	0817

Table III-2. Results of analysis for PCBs in an aqueous sample collected on 2 September 1986 from a production well at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	9/2/86					
ANALYSIS DATE:	10/3/86					
HHES SAMPLE ID:	0839					
CLIENT SAMPLE ID:	PW-1					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppb (ug/L)					
PCB 1016	<0.50					
PCB 1221	<0.50					
PCB 1232	<0.50					
PCB 1242	<0.50					
PCB 1248	<0.50					
PCB 1254	<1.0					
PCB 1260	<1.0					

Martin Marietta Environmental Systems

Table III-3. Results of analysis for priority pollutant metals in aqueous samples collected on 1 and 2 September 1986 from production wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals		Units: ppb (µg/L)								
MMES ID		0839	0823	0817						
Client ID		PW-1	PW-3	PW-4						
Sample Date		9/2/86	9/1/86	9/2/86						
Metal	Method									
Antimony	ICP	<200	<200	<200						
Arsenic	Furnace	<10	<10	<10						
Barium	ICP	<200	<200	<200						
Beryllium	ICP	<5	<5	<5						
Cadmium	ICP	<10	<10	<10						
Chromium	ICP	<20	<20	<20						
Copper	ICP	<25	<25	<25						
Lead	Furnace	<10	<10	<10						
Mercury	Cold Vapor	<0.30	<0.30	<0.30						
Nickel	ICP	<40	<40	<40						
Selenium	Furnace	<5	<5	<5						
Silver	ICP	<50	<50	<50						
Thallium	ICP	<500	<500	<500						
Zinc	ICP	66	<50	<50						

Table III-4. Results of chemical analysis of aqueous samples collected on 1 and 2 September 1986 from production wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	9/1/86	9/1/86	9/2/86			
MMES SAMPLE ID:	0839	0823	0817			
CLIENT SAMPLE ID:	PW-1	PW-3	PW-4			
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	1.2	1.1	0.72			
sulfate	34	29	21			
free cyanide	<0.010	<0.010	<0.010			
total cyanide	<0.010	<0.010	0.010			
sodium	29	33	23			

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Martin Marietta Environmental Systems

3. OFF-PLANT WELLS

Table IV-1. List of samples received from off-plant wells at
The Dalles Reduction Facility and corresponding
laboratory tracking numbers

Martin Marietta Reduction Facility Sample ID	Martin Marietta Environmental Systems Lab ID
Animal shelter	0874
Chenowith I	0888
Chenowith III	0889
Klindt	0881
Rockline	0873
Rec well	0787
Mountain fir lumber	0882

Table IV-2. Results of analysis for priority pollutant metals in aqueous samples collected during 29 August to 4 September 1986 from off-plant monitor wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

Reported as total metals

Units: ppb (µg/L)

MMES ID		0874	0888	0889	0881	0873	0787	0882		
Client ID		Animal Shelter	Cheno-with 1	Cheno-with 3	Klindt	Rockline	Reckwell	Mountain Fir Lumber		
Sample Date		9/3/86	9/4/86	9/4/86	9/2/86	9/3/86	8/29/86	9/2/86		
Metal	Method									
Antimony	ICP	<200	<200	<200	<200	<200	<200	<200		
Arsenic	Furnace	<10	<10	<50*	<50*	<10	<10	<10		
Barium	ICP	<200	<200	<200	<200	<200	<200	<200		
Beryllium	ICP	<5	<5	<5	<5	<5	<5	<5		
Cadmium	ICP	<10	<10	<10	<10	<10	<10	<10		
Chromium	ICP	<20	<20	<20	<20	<20	<20	<20		
Copper	ICP	<25	<25	<25	<25	<25	<25	<25		
Lead	Furnace	<10	<10	<10	<10	<10	21	<10		
Mercury	Cold Vapor	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		
Nickel	ICP	<40	<40	<40	(63)	<40	<40	<40		
Selenium	Furnace	<5	<5	<5	<5	<5	<5	<5		
Silver	ICP	<50	<50	<50	<50	<50	<50	<50		
Thallium	ICP	<500	<500	<500	<500	<500	<500	<500		
Zinc	ICP	60	<50	<50	213	126	<50	1280		

*Sample diluted due to matrix interferences.

Table IV-3. Results of chemical analysis of aqueous samples collected during 29 August to 4 September 1986 from off-plant wells at the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	9/3/86	9/4/86	9/4/86	9/2/86	9/3/86	8/29/86
MMES SAMPLE ID:	0874	0888	0889	0881	0873	0787
CLIENT SAMPLE ID:	ANIM.SHELT	CHENOWITH1	CHENOWITH3	KLINDT	ROCKLINE	REC WELL
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	0.38	1.1	1.0	0.63	2.8	1.3
sulfate	26	42	32	49.5	121	22
free cyanide	<0.010	<0.010	<0.010	0.013	<0.010	<0.010
total cyanide	0.036	<0.010	<0.010	0.46	0.29	<0.010
sodium	7.4	43	39	10	35	36

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Table IV-3. Continued

	1	2	3	4	5	6
SAMPLE DATE:	9/2/86					
NHES SAMPLE ID:	0882					
CLIENT SAMPLE ID:	HT FIR LUH					
NOTE:						
COMPOUNDS	FINAL CONCENTRATION = ppm (mg/L)					
fluoride	1.1					
sulfate	194					
free cyanide	<0.010					
total cyanide	0.013					
sodium	19					

RESAMPLING DATA:
RESULTS OF CHEMICAL ANALYSIS OF SAMPLES COLLECTED
BETWEEN 30 AUGUST AND 18 SEPTEMBER 1986
ACCORDING TO THE WORK PLAN OF THE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT THE MARTIN MARIETTA REDUCTION FACILITY,
THE DALLES, OREGON

Prepared for
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The Dalles Reduction Plant
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The Dalles, OR 97058

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1 December 1986

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REPORT SUMMARY

Martin Marietta Environmental Systems performed the work presented in this report according to the Work Plan (February 1986) for the "Remedial Investigation and Feasibility Study at the Martin Marietta Reduction Facility, The Dalles, Oregon".

Between 3 and 23 September 1986, Martin Marietta Environmental Systems received 18 water samples, 12 soil samples and 3 aqueous trip blanks collected during 30 August to 18 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon. A list of samples received and corresponding laboratory tracking numbers is shown in Table 1. Additional sample information can be found on the enclosed chain of custody forms included as Appendix A.

Samples were analyzed according to methods specified in the Quality Assurance Project Plan of the Remedial Investigation and Feasibility Study (summarized in Appendix D). All samples collected for cyanide analysis were tested for the presence of sulfide according to procedures approved by the EPA site manager.* Quality control sample data are contained in Appendices B and C. Minimum reported concentration levels are based on the contract required detection limits found in the EPA Contract Laboratory Program statements of work for organics and inorganics (July 1985).

*See letter from Norma Lewis, Superfund Site Manager, to Jose Bou, Vice President, Martin Marietta Aluminum Properties, Inc., dated 14 August 1986.

SUMMARY OF METHODS AND HOLDING TIMES

<u>Parameter</u>	<u>Instrument</u>	<u>Method Reference</u>	<u>Holding Time</u>
VOCs	Finnigan GC/MS	Modified 624/CLP (7/85)	14 days from sampling date
BNAs	Finnigan GC/MS	Modified 625/CLP (7/85)	Extracted within 14 days from sampling date*
PCBs	GC/ECD	Modified 608	Extracted within 14 days from sampling date*
Free cyanide	Spectrophotometer	Std. Meth. 412 B,D,H.	Distillation -- 14 days from sampling date
Total cyanide	Spectrophotometer	Modified 335.2/ CLP (7/85)	14 days from sampling date
Fluoride	Ion chromatograph	300 .0	28 days from sampling date
Sulfate	Ion chromatograph	300 .0	28 days from sampling date
Sodium	ICP/flame AA	200 .7/273 .21	6 months from sampling date
Total metals	ICP	200 Series/CLP (metals)	6 months from sampling date

*Samples must be completely analyzed within 40 days of extraction.

B. DATA

Table 1. List of samples received from the Martin Marietta Reduction Facility, The Dalles, Oregon, and corresponding laboratory tracking numbers

Martin Marietta Reduction Facility		Martin Marietta Environmental Systems
Sample ID		Lab ID
Sample A-J	8/30/86	0820
Trip Blank 63	8/27/86	0821
Recycle Pond A	8/30/86	0822
DCAQ	8/30/86	0830
NDEW	9/01/86	0833
NDDW	9/01/86	0834
NDCW	9/01/86	0835
NDBW	9/01/86	0836
NDAW	9/01/86	0837
REP-SW1	9/01/86	0838
Duck Pond	9/02/86	0843
Rep-SW2	9/02/86	0844
SSD #1	9/03/86	0870
SSD #2	9/03/86	0871
SSD #3	9/03/86	0872
DCDG	9/02/86	0877
Trip Blank 46A	8/26/86	0878
Lined Pond	9/02/86	0879
Rep-SW3	9/02/86	0880
DCEG	9/04/86	0892
SR-3	9/04/86	0893
Trip Blank #1	8/20/86	0894
RPS-1	9/04/86	0923
RPS-2	9/04/86	0924
RPS-3	9/04/86	0925
RPS-4	9/04/86	0926
RPS-5	9/04/86	0927
RPS-6	9/04/86	0928
LLAW	9/18/86	0979
LLBW	9/18/86	0980
LLCW	9/18/86	0981
LLCW-D	9/18/86	0982
LLDW	9/18/86	0983
LLFB (Field Blank)	9/18/86	0984
LLTB (Trip Blank)	9/18/86	0985

Table 2. Results of analysis for volatile organic compounds in soil samples collected on 2 and 4 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon

CLIENT SAMPLE ID:	DCDG	DCEG
MMES SAMPLE ID:	00877	00892
SAMPLE DATE:	09/02/86	09/04/86
ANALYSIS DATE:	09/04/86	09/05/86
FILE NAME:	2V877R	2V892
INSTRUMENT ID:	MS2	MS2
MATRIX:	SOIL	SOIL
UNITS:	ug/kg	ug/kg
COMPOUNDS		
Acrolein	< 50	< 50
Acrylonitrile	< 50	< 50
Benzene	< 25	< 25
Bromodichloromethane	< 25	< 25
Bromoform	< 25	< 25
Bromomethane	< 25	< 25
Carbon Tetrachloride	< 25	< 25
Chlorobenzene	< 25	< 25
Chloroethane	< 25	< 25
2-Chloroethylvinylether	< 50	< 50
Chloroform	< 25	< 25
Chloromethane	< 25	< 25
Dibromochloromethane	< 25	< 25
1,1-Dichloroethane	< 25	< 25
1,2-Dichloroethane	< 25	< 25
1,1-Dichloroethene	< 25	< 25
1,2-Dichloropropane	< 25	< 25
cis-1,3-Dichloropropene	< 25	< 25
Ethylbenzene	< 25	< 25
Methylene Chloride	< 25	< 25
1,1,2,2-Tetrachloroethane	< 25	< 25
Tetrachloroethene	< 25	< 25
Toluene	< 25	< 25
Trans-1,3-Dichloropropene	< 25	< 25
1,1,1-Trichloroethane	< 25	< 25
1,1,2-Trichloroethane	< 25	< 25
Trichloroethene	< 25	< 25
Trichlorofluoromethane	< 25	< 25
Vinyl Chloride	< 10	< 10
cis-1,2-Dichloroethene	< 25	< 25
trans-1,2-Dichloroethene	< 25	< 25

Table 2. Continued

CLIENT SAMPLE ID: SR-3
MMES SAMPLE ID: 00893
SAMPLE DATE: 09/04/86
ANALYSIS DATE: 09/05/86
FILE NAME: 2V893
INSTRUMENT ID: MS2
MATRIX: SOIL
UNITS: ug/kg

COMPOUNDS

Acrolein	< 50
Acrylonitrile	< 50
Benzene	< 25
Bromodichloromethane	< 25
Bromoform	< 25
Bromomethane	< 25
Carbon Tetrachloride	< 25
Chlorobenzene	< 25
Chloroethane	< 25
2-Chloroethylvinylether	< 50
Chloroform	< 25
Chloromethane	< 25
Dibromochloromethane	< 25
1, 1-Dichloroethane	< 25
1, 2-Dichloroethane	< 25
1, 1-Dichloroethene	< 25
1, 2-Dichloropropane	< 25
cis-1, 3-Dichloropropene	< 25
Ethylbenzene	< 25
Methylene Chloride	< 25
1, 1, 2, 2-Tetrachloroethane	< 25
Tetrachloroethene	< 25
Toluene	< 25
Trans-1, 3-Dichloropropene	< 25
1, 1, 1-Trichloroethane	< 25
1, 1, 2-Trichloroethane	< 25
Trichloroethene	< 25
Trichlorofluoromethane	< 25
Vinyl Chloride	< 10
cis-1, 2-Dichloroethene	< 25
trans-1, 2-Dichloroethene	< 25

Table 3. Results of analysis for base/neutral acid extractable compounds in soil samples collected on 3 and 4 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon

CLIENT SAMPLE ID:	SSD-1	SSD-2	SSD-3
MMES SAMPLE ID:	00870	00871	00872
SAMPLE DATE:	09/03/86	09/03/86	09/03/86
EXTRACTION DATE:	09/09/86	09/09/86	09/09/86
ANALYSIS DATE:	09/12/86	09/12/86	09/13/86
FILE NAME:	BNAB70	BNAB71	BNAB72
INSTRUMENT ID:	MS1	MS1	MS1
MATRIX:	SOIL	SOIL	SOIL
UNITS:	ug/kg	ug/kg	ug/kg
COMPOUNDS			
Acenaphthalene	< 1670	< 1670	< 1670
Acenaphthene	< 1670	< 1670	< 1670
Anthracene	< 1670	< 1670	< 1670
Benzidine	< 3030	< 3030	< 3030
Benzo(a)Anthracene	< 1670	< 1670	<u>5000</u>
Benzo(a)Pyrene	< 1670	< 1670	<u>4660</u>
Benzo(b+k)fluoranthenes	< 1670	< 1670	< 1670
Benzo(g,h,i)Perylene	< 1670	< 1670	<u>6360</u>
4-Bromophenyl-phenylether	< 1670	< 1670	< 1670
Butylbenzylphthalate	< 1670	< 1670	< 1670
4-Chloro-3-Methylphenol	< 1670	< 1670	< 1670
bis(2-Chloroethoxy)Methane	< 1670	< 1670	< 1670
bis(2-Chloroethyl)Ether	< 1670	< 1670	< 1670
bis(2-Chloroisopropyl)Ether	< 1670	< 1670	< 1670
2-Chloronaphthalene	< 1670	< 1670	< 1670
2-Chlorophenol	< 1670	< 1670	< 1670
4-Chlorophenyl-phenylether	< 1670	< 1670	< 1670
Chrysene	< 1670	< 1670	<u>8260</u>
Di-n-Butylphthalate	< 1670	< 1670	< 1670
Di-n-Octyl Phthalate	< 1670	< 1670	< 1670
Dibenz(a,h)Anthracene	< 1670	< 1670	<u>3170</u>
1,2-Dichlorobenzene	< 1670	< 1670	< 1670
1,4-Dichlorobenzene	< 1670	< 1670	< 1670
1,3-Dichlorobenzene	< 1670	< 1670	< 1670
3,3'-Dichlorobenzidine	< 3330	< 3330	< 3330
2,4-Dichlorophenol	< 1670	< 1670	< 1670
Diethylphthalate	< 1670	< 1670	< 1670
Dimethyl Phthalate	< 1670	< 1670	< 1670
2,4-Dimethylphenol	< 1670	< 1670	< 1670
4,6-Dinitro-2-Methylphenol	< 8080	< 8080	< 8080
2,4-Dinitrophenol	< 8080	< 8080	< 8080
2,6-Dinitrotoluene	< 1670	< 1670	< 1670
2,4-Dinitrotoluene	< 1670	< 1670	< 1670
1,2-Diphenylhydrazine	< 1670	< 1670	< 1670
bis(2-Ethylhexyl)Phthalate	< 1670	< 1670	< 1670

Table 3. Continued

CLIENT SAMPLE ID:	SSD-1	SSD-2	SSD-3
MMES SAMPLE ID:	00870	00871	00872
SAMPLE DATE:	09/03/86	09/03/86	09/03/86
EXTRACTION DATE:	09/09/86	09/09/86	09/09/86
ANALYSIS DATE:	09/12/86	09/12/86	09/13/86
FILE NAME:	BNA870	BNA871	BNA872
INSTRUMENT ID:	MS1	MS1	MS1
MATRIX:	SOIL	SOIL	SOIL
UNITS:	ug/kg	ug/kg	ug/kg
COMPOUNDS			
Fluoranthene	< 1670	< 1670	<u>7890</u>
Fluorene	< 1670	< 1670	< 1670
Hexachlorobenzene	< 1670	< 1670	< 1670
Hexachlorobutadiene	< 1670	< 1670	< 1670
Hexachlorocyclopentadiene	< 1670	< 1670	< 1670
Hexachloroethane	< 1670	< 1670	< 1670
Indeno(1,2,3-cd)Pyrene	< 1670	< 1670	<u>7290</u>
Isophorone	< 1670	< 1670	< 1670
N-Nitroso-Di-n-Propylamine	< 1670	< 1670	< 1670
N-Nitrosodimethylamine	< 1670	< 1670	< 1670
N-Nitrosodiphenylamine	< 1670	< 1670	< 1670
Naphthalene	< 1670	< 1670	< 1670
Nitrobenzene	< 1670	< 1670	< 1670
4-Nitrophenol	< 8080	< 8080	< 8080
2-Nitrophenol	< 1670	< 1670	< 1670
Pentachlorophenol	< 8080	< 8080	< 8080
Phenanthrene	< 1670	< 1670	<u>2200</u>
Phenol	< 1670	< 1670	< 1670
Pyrene	< 1670	< 1670	<u>9160</u>
1,2,4-Trichlorobenzene	< 1670	< 1670	< 1670
2,4,6-Trichlorophenol	< 1670	< 1670	< 1670

Table 3. Continued

CLIENT SAMPLE ID:	RPS-1	RPS-2	RPS-3	RPS-4	RPS-5
MMES SAMPLE ID:	00923	00924	00925	00926	00927R
SAMPLE DATE:	09/04/86	09/04/86	09/04/86	09/04/86	09/04/86
EXTRACTION DATE:	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
ANALYSIS DATE:	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86
FILE NAME:	BNA923	BNA924	BNA925	BNA926	BNA927R
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
COMPOUNDS					
Acenaphthalene	< 50000	< 50000	< 50000	< 50000	< 50000
Acenaphthene	< 50000	< 50000	< 50000	< 50000	< 50000
Anthracene	<u>52000</u>	<u>59900</u>	<u>57600</u>	<u>50800</u>	<u>60100</u>
Benzidine	< 90900	< 90900	< 90900	< 90900	< 90900
Benzo(a)Anthracene	<u>380000</u>	<u>491000</u>	<u>488000</u>	<u>394000</u>	<u>450000</u>
Benzo(a)Pyrene	<u>182000</u>	<u>228000</u>	<u>209000</u>	<u>194000</u>	<u>200000</u>
Benzo(b+k)fluoranthenes	<u>527000</u>	<u>649000</u>	<u>623000</u>	<u>571000</u>	<u>588000</u>
Benzo(g,h,i)Perylene	<u>106000</u>	<u>145000</u>	<u>148000</u>	<u>126000</u>	<u>147000</u>
4-Bromophenyl-phenylether	< 50000	< 50000	< 50000	< 50000	< 50000
Butylbenzylphthalate	< 50000	< 50000	< 50000	< 50000	< 50000
4-Chloro-3-Methylphenol	< 50000	< 50000	< 50000	< 50000	< 50000
bis(2-Chloroethoxy)Methane	< 50000	< 50000	< 50000	< 50000	< 50000
bis(2-Chloroethyl)Ether	< 50000	< 50000	< 50000	< 50000	< 50000
bis(2-Chloroisopropyl)Ether	< 50000	< 50000	< 50000	< 50000	< 50000
2-Chloronaphthalene	< 50000	< 50000	< 50000	< 50000	< 50000
2-Chlorophenol	< 50000	< 50000	< 50000	< 50000	< 50000
4-Chlorophenyl-phenylether	< 50000	< 50000	< 50000	< 50000	< 50000
Chrysene	<u>594000</u>	<u>742000</u>	<u>728000</u>	<u>698000</u>	<u>700000</u>
Di-n-Butylphthalate	< 50000	< 50000	< 50000	< 50000	< 50000
Di-n-Octyl Phthalate	< 50000	< 50000	< 50000	< 50000	< 50000
Dibenz(a,h)Anthracene	<u>60300</u>	<u>79500</u>	<u>82400</u>	< 50000	<u>75400</u>
1,2-Dichlorobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
1,4-Dichlorobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
1,3-Dichlorobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
3,3'-Dichlorobenzidine	< 100000	< 100000	< 100000	< 100000	< 100000
2,4-Dichlorophenol	< 50000	< 50000	< 50000	< 50000	< 50000
Diethylphthalate	< 50000	< 50000	< 50000	< 50000	< 50000
Dimethyl Phthalate	< 50000	< 50000	< 50000	< 50000	< 50000
2,4-Dimethylphenol	< 50000	< 50000	< 50000	< 50000	< 50000
4,6-Dinitro-2-Methylphenol	< 242000	< 242000	< 242000	< 242000	< 242000
2,4-Dinitrophenol	< 242000	< 242000	< 242000	< 242000	< 242000
2,6-Dinitrotoluene	< 50000	< 50000	< 50000	< 50000	< 50000
2,4-Dinitrotoluene	< 50000	< 50000	< 50000	< 50000	< 50000
1,2-Diphenylhydrazine	< 50000	< 50000	< 50000	< 50000	< 50000
bis(2-Ethylhexyl)Phthalate	< 50000	< 50000	< 50000	< 50000	< 50000

Table 3. Continued

CLIENT SAMPLE ID:	RPS-1	RPS-2	RPS-3	RPS-4	RPS-5
MMES SAMPLE ID:	00923	00924	00925	00926	00927R
SAMPLE DATE:	09/04/86	09/04/86	09/04/86	09/04/86	09/04/86
EXTRACTION DATE:	09/11/86	09/11/86	09/11/86	09/11/86	09/11/86
ANALYSIS DATE:	09/15/86	09/15/86	09/15/86	09/15/86	09/15/86
FILE NAME:	BNA923	BNA924	BNA925	BNA926	BNA927R
INSTRUMENT ID:	MS1	MS1	MS1	MS1	MS1
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
UNITS:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
COMPOUNDS					
Fluoranthene	<u>884000</u>	<u>1.1E+06</u>	<u>941000</u>	<u>775000</u>	<u>968000</u>
Fluorene	< 50000	< 50000	< 50000	< 50000	< 50000
Hexachlorobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
Hexachlorobutadiene	< 50000	< 50000	< 50000	< 50000	< 50000
Hexachlorocyclopentadiene	< 50000	< 50000	< 50000	< 50000	< 50000
Hexachloroethane	< 50000	< 50000	< 50000	< 50000	< 50000
Indeno(1,2,3-cd)Pyrene	<u>141000</u>	<u>156000</u>	<u>149000</u>	<u>139000</u>	<u>174000</u>
Isophorone	< 50000	< 50000	< 50000	< 50000	< 50000
N-Nitroso-Di-n-Propylamine	< 50000	< 50000	< 50000	< 50000	< 50000
N-Nitrosodimethylamine	< 50000	< 50000	< 50000	< 50000	< 50000
N-Nitrosodiphenylamine	< 50000	< 50000	< 50000	< 50000	< 50000
Naphthalene	< 50000	< 50000	< 50000	< 50000	< 50000
Nitrobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
4-Nitrophenol	< 242000	< 242000	< 242000	< 242000	< 242000
2-Nitrophenol	< 50000	< 50000	< 50000	< 50000	< 50000
Pentachlorophenol	< 242000	< 242000	< 242000	< 242000	< 242000
Phenanthrene	<u>147000</u>	<u>173000</u>	<u>199000</u>	<u>138000</u>	<u>157000</u>
Phenol	< 50000	< 50000	< 50000	< 50000	< 50000
Pyrene	<u>692000</u>	<u>921000</u>	<u>781000</u>	<u>599000</u>	<u>883000</u>
1,2,4-Trichlorobenzene	< 50000	< 50000	< 50000	< 50000	< 50000
2,4,6-Trichlorophenol	< 50000	< 50000	< 50000	< 50000	< 50000

Table 3. Continued

CLIENT SAMPLE ID: RPS-6
 MMES SAMPLE ID: 00928
 SAMPLE DATE: 09/04/86
 EXTRACTION DATE: 09/11/86
 ANALYSIS DATE: 09/15/86
 FILE NAME: BNA928
 INSTRUMENT ID: MS1
 MATRIX: SOIL
 UNITS: ug/kg

COMPOUNDS

Acenaphthalene	< 50000
Acenaphthene	< 50000
Anthracene	<u>57600</u>
Benzydine	< 90900
Benzo(a)Anthracene	<u>429000</u>
Benzo(a)Pyrene	<u>197000</u>
Benzo(b+k)fluoranthenes	<u>608000</u>
Benzo(g, h, i)Perylene	<u>137000</u>
4-Bromophenyl-phenylether	< 50000
Butylbenzylphthalate	< 50000
4-Chloro-3-Methylphenol	< 50000
bis(2-Chloroethoxy)Methane	< 50000
bis(2-Chloroethyl)Ether	< 50000
bis(2-Chloroisopropyl)Ether	< 50000
2-Chloronaphthalene	< 50000
2-Chlorophenol	< 50000
4-Chlorophenyl-phenylether	< 50000
Chrysene	<u>692000</u>
Di-n-Butylphthalate	< 50000
Di-n-Octyl Phthalate	< 50000
Dibenz(a, h)Anthracene	<u>76300</u>
1,2-Dichlorobenzene	< 50000
1,4-Dichlorobenzene	< 50000
1,3-Dichlorobenzene	< 50000
3,3'-Dichlorobenzidine	< 100000
2,4-Dichlorophenol	< 50000
Diethylphthalate	< 50000
Dimethyl Phthalate	< 50000
2,4-Dimethylphenol	< 50000
4,6-Dinitro-2-Methylphenol	< 242000
2,4-Dinitrophenol	< 242000
2,6-Dinitrotoluene	< 50000
2,4-Dinitrotoluene	< 50000
1,2-Diphenylhydrazine	< 50000
bis(2-Ethylhexyl)Phthalate	< 50000

Table 3. Continued

CLIENT SAMPLE ID: RPS-6
MMES SAMPLE ID: 00928
SAMPLE DATE: 09/04/86
EXTRACTION DATE: 09/11/86
ANALYSIS DATE: 09/15/86
FILE NAME: BNA928
INSTRUMENT ID: MS1
MATRIX: SOIL
UNITS: ug/kg

COMPOUNDS

Fluoranthene	<u>935000</u>
Fluorene	< 50000
Hexachlorobenzene	< 50000
Hexachlorobutadiene	< 50000
Hexachlorocyclopentadiene	< 50000
Hexachloroethane	< 50000
Indeno(1, 2, 3-cd)Pyrene	<u>170000</u>
Isophorone	< 50000
N-Nitroso-Di-n-Propylamine	< 50000
N-Nitrosodimethylamine	< 50000
N-Nitrosodiphenylamine	< 50000
Naphthalene	< 50000
Nitrobenzene	< 50000
4-Nitrophenol	< 242000
2-Nitrophenol	< 50000
Pentachlorophenol	< 242000
Phenanthrene	<u>161000</u>
Phenol	< 50000
Pyrene	<u>712000</u>
1, 2, 4-Trichlorobenzene	< 50000
2, 4, 6-Trichlorophenol	< 50000

Table 4. Results of analysis for PCBs in a composite soil sample collected on 4 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon

	1	2	3	4	5	6
SAMPLE DATE:	9/4/86					
ANALYSIS DATE:	10/3/86					
MMES SAMPLE ID:	0943					
CLIENT SAMPLE ID:	RPS					
NOTE:	COMPOSITE					
COMPOUNDS	FINAL CONCENTRATION = ppb (ug/kg)					
PCB 1016	<170					
PCB 1221	<170					
PCB 1232	<170					
PCB 1242	<170					
PCB 1248	<170					
PCB 1254	<330					
PCB 1260	<330					

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Table 5. Results of analysis for total and free cyanide in aqueous samples collected during 30 August to 18 September 1986 from the Martin Marietta Reduction Facility, The Dalles, Oregon

Martin Marietta Reduction Facility Sample ID	Martin Marietta Environmental Systems Lab ID	Total Cyanide (mg/L)	Free Cyanide (mg/L)
Recycle Pond	0822	0.020	<0.010
DCAQ	0830	<0.010	<0.010
NDAW	0837	0.16	0.066
NDBW	0836	0.26	0.18
NDCW	0835	<0.010	<0.010
NDDW	0834	<0.010	<0.010
NDEW	0833	<0.010	<0.010
Duck Pond	0843	<0.010	<0.010
Lined Pond	0879	<0.010	<0.010
Sample A-J	0820	0.027	<0.010
Rep-SW1	0838	<0.010	<0.010
Rep-SW2	0844	<0.010	<0.010
Rep-SW3	0880	<0.010	<0.010
LLAW	0979	0.11	<0.010
LLBW	0980	29	4.7
LLCW	0981	14	3.6
LLCW-D	0982	15	2.5
LLDW	0983	14	1.6

Table 6. Results of analysis for volatile organic compounds in aqueous trip blanks accompanying samples collected from the Martin Marietta Reduction Facility, The Dalles, Oregon

CLIENT SAMPLE ID:	TRIP	TRIP
	BLK-1A	BLANK46A
MMES SAMPLE ID:	00894	00878
SAMPLE DATE:	08/20/86	08/20/86
ANALYSIS DATE:	09/05/86	09/04/86
FILE NAME:	2V894	3V878
INSTRUMENT ID:	MS2	MS3
MATRIX:	WATER	WATER
UNITS:	ug/l	ug/l
COMPOUNDS		
Acrolein	< 10	< 10
Acrylonitrile	< 10	< 10
Benzene	< 5	< 5
Bromodichloromethane	< 5	< 5
Bromoform	< 5	< 5
Bromomethane	< 5	< 5
Carbon Tetrachloride	< 5	< 5
Chlorobenzene	< 5	< 5
Chloroethane	< 5	< 5
2-Chloroethylvinylether	< 10	< 10
Chloroform	< 5	< 5
Chloromethane	< 5	< 5
Dibromochloromethane	< 5	< 5
1,1-Dichloroethane	< 5	< 5
1,2-Dichloroethane	< 5	< 5
1,1-Dichloroethene	< 5	< 5
1,2-Dichloropropane	< 5	< 5
cis-1,3-Dichloropropene	< 5	< 5
Ethylbenzene	< 5	< 5
Methylene Chloride	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5
Tetrachloroethene	< 5	< 5
Toluene	< 5	< 5
Trans-1,3-Dichloropropene	< 5	< 5
1,1,1-Trichloroethane	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5
Trichloroethene	< 5	< 5
Trichlorofluoromethane	< 5	< 5
Vinyl Chloride	< 1	< 1
cis-1,2-Dichloroethene	< 5	< 5
trans-1,2-Dichloroethene	< 5	< 5

Table 7. Results of analysis for total and free cyanide in aqueous blanks accompanying samples collected from the Martin Marietta Reduction Facility, The Dalles, Oregon

Martin Marietta Reduction Facility Sample ID	Martin Marietta Environmental Systems Lab ID	Total Cyanide (mg/L)	Free Cyanide (mg/L)
Trip Blank 63	0821	<0.010	<0.010
Field Blank	0984	<0.010	<0.010
Trip Blank	0985	<0.010	<0.010

MARTIN MARIETTA ALUMINUM REDUCTION
PLANT, THE DALLES, OREGON, TASK ORDER
FOR LABORATORY SERVICES
(NO. 901-999-701)
(CONTRACT NO. 87-ETMF-002):
ANALYTICAL DATA FOR SOIL AND
AQUEOUS SAMPLES COLLECTED BETWEEN
22 AND 26 JUNE AND ON 2 AUGUST 1987

Prepared for

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Prepared by

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ESM Operations
Analytical Chemistry Services
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20 August 1987

REPORT SUMMARY

This report presents analytical data for soil and water samples collected at the Martin Marietta Aluminum Reduction Plant, The Dalles, Oregon as part of the remedial investigation/feasibility study work plan being conducted by Geraghty & Miller, Inc. Versar, Inc., ESM Operations Environmental Chemistry Laboratory performed the work presented in this report according to the "Task Order for Laboratory Services No. 901-999-701" (Contract No. 87-ETMF-002 with Martin Marietta Corporation).

Between 24 and 29 June and on 4 August 1987, ESM Operations received 22 soil and 8 water samples, 5 field blanks, and 3 trip blanks that were collected between 22 and 26 June and on 2 August 1987 at the Martin Marietta Aluminum Reduction Plant, The Dalles, Oregon. Lists of samples received and corresponding laboratory tracking numbers are shown in Tables I-1 and I-2. Additional sample information can be found on the chain of custody forms included as Appendix A.

Samples results are presented by matrix; i.e., Section II contains soil sample data and Section III contains water sample data. Sample codes and field replicate identities were obtained from the Project Quality Assurance Officer after analysis was complete in order to organize the data by site.

Quality control protocols specified in Task Order 901-999-70 were adhered to and results are presented in Appendices B and C. EPA-CLP quality control limits were employed for the respective methods. Laboratory levels of quantitation are listed in Appendix D. Appendix E contains quality control sample data for organic analyses.

SECTION I

SAMPLE IDENTIFICATION

Table I-1. List of samples received between 24 and 29 June 1987
and corresponding laboratory blanks

Martin Marietta The Dalles Sample ID		ESM Operations Lab ID
LRASC	6/22/87	2910
LRBSC	6/22/87	2911
LRCSC	6/22/87	2912
Soil Rep 1E	6/22/87	2913
LRDSC	6/22/87	2914
LRFB	6/22/87	2915
PHASC	6/23/87	2916
Soil Rep 2	6/23/87	2917
PHFB	6/23/87	2918
DLSW-Rep 1E	6/23/87	2925
Trip Blank 1	6/23/87	2926
LDAWG	6/23/87	2927
Trip Blank 5	6/16/87	2928
LDBWG	6/23/87	2929
LDFB	6/23/87	2930
Trip Blank 3	6/16/87	2931
ODCSC-1	6/24/87	2932
BRFB	6/24/87	2933
BRASC	6/24/87	2934
MPASG	6/24/87	2935
MPBSG	6/24/87	2936
MPCSG	6/24/87	2937
CWASG	6/24/87	2938
CWBSG	6/24/87	2939
CWCSG	6/24/87	2940
Soil Rep 3R	6/24/87	2941
Soil Rep 4R	6/24/87	2942
OCWP-Pit B	6/26/87	2988
Scrubber pipe effluent	6/26/87	2989
SASC	6/26/87	2990
CWASC-1	6/26/87	2991
SAFB	6/26/87	2992
OCWPSC-B	6/26/87	2993
OCWPSC-A	6/26/87	2994
OCWPSC-C	6/26/87	2995

Table I-2. List of samples received on 4 August 1987 and corresponding laboratory tracking numbers

Martin Marietta
The Dalles
Sample ID

ESM Operations
Lab ID

LDBWG-Repeat	8/2/87	3338
DLSW-Rep 1E-Repeat	8/2/87	3339
LDAWG-Repeat	8/2/87	3340
LDFB-Repeat	8/2/87	3341

LEVELS OF QUANTITATION
FOR
INORGANIC ANALYSIS

The Levels of Quantitation (LOQ) for inorganic analyses were determined using the procedure specified in "Principles of Environmental Analysis" Analytical Chemistry, Volume 55, Pages 2210-2218, December 1983. The actual LOQs for each sample will vary depending on sample size, required dilutions, sample matrix, etc.

VERSAR INC., ESM OPERATIONS
LEVELS OF QUANTITATION

Parameter	: Method	: LEVEL OF QUANTITATION WATER : (mg/L)
Total Cyanide	335.2	0.010
Free Cyanide	412H(1)	0.010
Fluoride	300.0	1.6
Fluoride	340.2	1.0
Sulfate	375.4	5.0
Sulfate	300.0	2.0
Chloride	325.3	0.29(1)
Carbonate	403(2)	1.0
Bicarbonate	403	1.0
Sodium(tot)	200.7	1.0
Sodium(diss)	200.7	1.0
Calcium(diss)	200.7	0.50
Magnesium(diss)	200.7	0.50
Potassium(diss)	200.7	1.0

- (1) LOQ for chloride varies with the normality of the titrant.
(2) Standard Methods

LEVELS OF QUANTITATION
FOR
ORGANIC ANALYSIS

The Levels of Quantitation (LOQ) for the organic analyses were determined using the procedure specified in the USEPA Contract Laboratory Program Statement of Work, 7/85 Revision Page A-4, paragraph c.

This method requires the analysis of each compound in triplicate at a level equivalent to 3 to 5 times the Contract Required Detection Limit (now called the Contract Required Quantitation Level). The actual LOQs for each sample may vary, however, dependent on how much sample was extracted or analyzed, required dilutions, sample matrix, etc.

Table D-2. Levels of quantitation for base/neutral acid extractables in an aqueous matrix

COMPOUNDS	MATRIX: UNITS:	WATER UG/L
Acenaphthalene		< 10
Acenaphthene		< 10
Anthracene		< 10
Benzidine		< 80
Benzo(a)Anthracene		< 10
Benzo(a)Pyrene		< 10
Benzo(b+k)fluoranthenes		< 10
Benzo(g, h, i)Perylene		< 10
4-Bromophenyl-phenylether		< 10
Butylbenzylphthalate		< 10
4-Chloro-3-Methylphenol		< 10
bis(2-Chloroethoxy)Methane		< 10
bis(2-Chloroethyl)Ether		< 10
bis(2-Chloroisopropyl)Ether		< 10
2-Chloronaphthalene		< 10
2-Chlorophenol		< 10
4-Chlorophenyl-phenylether		< 10
Chrysene		< 10
Di-n-Butylphthalate		< 10
Di-n-Octyl Phthalate		< 10
Dibenz(a, h)Anthracene		< 10
1,2-Dichlorobenzene		< 10
1,4-Dichlorobenzene		< 10
1,3-Dichlorobenzene		< 10
3,3'-Dichlorobenzidine		< 20
2,4-Dichlorophenol		< 10
Diethylphthalate		< 10
Dimethyl Phthalate		< 10
2,4-Dimethylphenol		< 10
4,6-Dinitro-2-Methylphenol		< 50
2,4-Dinitrophenol		< 50
2,4-Dinitrotoluene		< 10
2,6-Dinitrotoluene		< 10
1,2-Diphenylhydrazine		< 10
bis(2-Ethylhexyl)Phthalate		< 10
Fluoranthene		< 10

Table D-2. Continued

COMPOUNDS	MATRIX: UNITS:	WATER UG/L
Fluorene		< 10
Hexachlorobenzene		< 10
Hexachlorobutadiene		< 10
Hexachlorocyclopentadiene		< 10
Hexachloroethane		< 10
Indeno(1,2,3-cd)Pyrene		< 10
Isophorone		< 10
N-Nitroso-Di-n-Propylamine		< 10
N-Nitrosodimethylamine		< 5
N-Nitrosodiphenylamine		< 10
Naphthalene		< 10
Nitrobenzene		< 10
4-Nitrophenol		< 50
2-Nitrophenol		< 10
Pentachlorophenol		< 50
Phenanthrene		< 10
Phenol		< 10
Pyrene		< 10
1,2,4-Trichlorobenzene		< 10
2,4,6-Trichlorophenol		< 10

C. DATA

SECTION II

SOIL SAMPLES

A. LANDFILL RUNOFF AREA

Table II-1. Results of analysis for EP Toxic metals in EP Toxicity extracts of soil samples collected on 22 June 1987 from the Landfill Runoff area of Martin Marietta, The Dalles

Reported in EP TOX extracts

Units: ppb ($\mu\text{g/L}$)

Lab ID		2910	2911	2912	2914	2911 2913					
Client ID		LRASC	LRBSC	LRCSC	LRDSC	Soil Rep 1E					
Sample Date		6/22/87	6/22/87	6/22/87	6/22/87	6/22/87					
Metal	Method										
Arsenic	ICP	<200	<200	<200	<200	<200					
Barium	ICP	<200	<200	314	<200	<200					
Cadmium	ICP	<50	<50	<50	<50	<50					
Chromium	ICP	<50	<50	<50	<50	<50					
Lead	ICP	<200	<200	<200	<200	<200					
Mercury	Cold Vapor	<0.30	<0.30	<0.30	<0.30	<0.30					
Selenium	ICP	<200	<200	<200	<200	<200					
Silver	ICP	<50	<50	<50	<50	<50					

Table II-2. Results of chemical analysis of soil samples collected on 22 June 1987 from the Landfill Runoff Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/22/87	6/22/87	6/22/87	6/22/87	6/22/87	
ESM SAMPLE ID:	2910	2911	2912	2914	2913	
CLIENT SAMPLE ID:	LRASC	LRBSC	LRCSC	LRDSC	SOILREP 1E	
NOTE:						
COMPOUNDS						
% solids	98	93	96	98	93	
arsenic (mg/kg)	<10	<11	19	<10	<11	
sodium (mg/kg)	10,500	12,400	12,900	5030	11,600	
Fluoride (mg/kg)	2300 (a)	1830 (a)	604 (a)	347 (a)	1510 (a)	
sulfate (mg/kg) by IC	918	3940	3800	335	3880	
sulfate (mg/kg) turbidimetric	<510 (b)	3440 (b)	3440 (b)	<510 (b)	3330 (b)	
total cyanide (mg/kg)	10	7.4	60	4.0	3.8	
free cyanide (mg/kg)	0.66 (c)	0.80 (c)	5.0 (c)	0.50 (c)	0.68 (c)	

(a) High RPD for leaching duplicate due to sample inhomogeneity. See QC table in Appendix C.

(b) High spike recovery for batch QC. See QC table in Appendix C.

(c) Low spike recovery for batch QC. See QC table in Appendix C.

Table II-3. Results of analysis for EP Toxicity metals in a filtered aqueous field blank associated with soil samples collected on 22 June 1987 from the Landfill Runoff area of Martin Marietta, The Dalles

Reported as dissolved metals

Units: ppb (µg/L)

Lab ID		2915									
Client ID		LRFB									
Sample Date		6/22/87									
Metal	Method										
Arsenic	ICP	<200									
Barium	ICP	<200									
Cadmium	ICP	<50									
Chromium	ICP	<50									
Lead	ICP	<200									
Mercury	Cold Vapor	<0.30									
Selenium	ICP	<200									
Silver	ICP	<50									

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Table II-4. Results of chemical analysis of an aqueous field blank associated with solid samples collected on 22 June 1987 from the Landfill Runoff Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/22/87					
ESM SAMPLE ID:	2915					
CLIENT SAMPLE ID:	LRFB					
NOTE:						
COMPOUNDS						
arsenic (ug/L)	<10					
sodium (ug/L)	<1000					
fluoride (mg/L) by IC	<1.6					
fluoride (mg/L) by ISE	<1.0					
sulfate (mg/L) by IC	<2.0					
sulfate (mg/L) turbidimetric	<5.0					
total cyanide (ug/L)	<10					
free cyanide (ug/L)	<10					

B. POTLINER HANDLING AREA

Table II-5. Results of chemical analysis of soil samples collected on 23 June 1987 from the Potliner Handling Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/23/87	6/23/87				
ESM SAMPLE ID:	2916	2917				
CLIENT SAMPLE ID:	PHASC	SOILREP 2				
NOTE:						
COMPOUNDS						
% solids	98	98				
sodium (mg/kg)	29,600	28,600				
Fluoride (mg/kg)	673	898				
total cyanide (mg/kg)	14	16				
Free cyanide (mg/kg)	4.0 *	4.8 *				

* Low spike recovery for batch QC. See QC table in Appendix C.

Table II-6. Results of analysis for base/neutral extractable compounds in soil samples collected on 23 June 1987 from the Potliner Handling Area of Martin Marietta, The Dalles

CLIENT SAMPLE ID:	PHASC	SOIL
LAB SAMPLE ID:	2916	REP-2
SAMPLE DATE:	06/23/87	2917
EXTRACTION DATE:	06/24/87	06/24/87
ANALYSIS DATE:	07/09/87	07/09/87
FILE NAME:	S2916	S2917
INSTRUMENT ID:	MS-A	MS-A
MATRIX:	SOIL	SOIL
UNITS:	UG/KG	UG/KG
COMPOUNDS		
Acenaphthalene	< 83500	< 83500
Acenaphthene	<u>114000</u>	<u>91300</u>
Anthracene	< 83500	< 83500
Benzidine	< 152000	< 152000
Benzo(a)Anthracene	<u>989000</u>	<u>820000</u>
Benzo(a)Pyrene	<u>778000</u>	<u>585000</u>
Benzo(b+k)fluoranthenes	<u>1.8E+06</u>	<u>1.5E+06</u>
Benzo(g,h,i)Perylene	<u>466000</u>	<u>700000</u>
4-Bromophenyl-phenylether	< 83500	< 83500
Butylbenzylphthalate	< 83500	< 83500
bis(2-Chloroethoxy)Methane	< 83500	< 83500
bis(2-Chloroethyl)Ether	< 83500	< 83500
bis(2-Chloroisopropyl)Ether	< 83500	< 83500
2-Chloronaphthalene	< 83500	< 83500
4-Chlorophenyl-phenylether	< 83500	< 83500
Chrysene	<u>872000</u>	<u>815000</u>
Di-n-Butylphthalate	< 83500	< 83500
Di-n-Octyl Phthalate	< 83500	< 83500
Dibenz(a,h)Anthracene	<u>274000</u>	<u>451000</u>
1,3-Dichlorobenzene	< 83500	< 83500
1,2-Dichlorobenzene	< 83500	< 83500
1,4-Dichlorobenzene	< 83500	< 83500
3,3'-Dichlorobenzidine	< 167000	< 167000
Diethylphthalate	< 83500	< 83500
Dimethyl Phthalate	< 83500	< 83500
2,4-Dinitrotoluene	< 83500	< 83500
2,6-Dinitrotoluene	< 83500	< 83500
1,2-Diphenylhydrazine	< 83500	< 83500
bis(2-Ethylhexyl)Phthalate	< 83500	< 83500
Fluoranthene	<u>1.6E+06</u>	<u>1.2E+06</u>
Fluorene	< 83500	< 83500
Hexachlorobenzene	< 83500	< 83500
Hexachlorobutadiene	< 83500	< 83500
Hexachlorocyclopentadiene	< 83500	< 83500
Hexachloroethane	< 83500	< 83500
Indeno(1,2,3-cd)Pyrene	<u>559000</u>	<u>444000</u>

Table II-6. Continued

CLIENT SAMPLE ID:	PHASC	SOIL
		REP-2
LAB SAMPLE ID:	2916	2917
SAMPLE DATE:	06/23/87	06/23/87
EXTRACTION DATE:	06/24/87	06/24/87
ANALYSIS DATE:	07/09/87	07/09/87
FILE NAME:	S2916	S2917
INSTRUMENT ID:	MS-A	MS-A
MATRIX:	SOIL	SOIL
UNITS:	UG/KG	UG/KG
COMPOUNDS		
Isophorone	< 83500	< 83500
N-Nitroso-Di-n-Propylamine	< 83500	< 83500
N-Nitrosodimethylamine	< 83500	< 83500
N-Nitrosodiphenylamine	< 83500	< 83500
Naphthalene	< 83500	< 83500
Nitrobenzene	< 83500	< 83500
Phenanthrene	<u>696000</u>	<u>553000</u>
Pyrene	<u>893000</u>	<u>783000</u>
1,2,4-Trichlorobenzene	< 83500	< 83500

Table II-7. Results of analysis for base/neutral extractable compounds in a solid field blank associated with soil samples collected on 23 June 1987 from the Potliner Handling Area of Martin Marietta, The Dalles

CLIENT SAMPLE ID:	PHFB
LAB SAMPLE ID:	2918
SAMPLE DATE:	06/23/87
EXTRACTION DATE:	06/24/87
ANALYSIS DATE:	07/09/87
FILE NAME:	S2918
INSTRUMENT ID:	MS-A
MATRIX:	SOIL
UNITS:	UG/KG
COMPOUNDS	
Acenaphthalene	< 1670
Acenaphthene	< 1670
Anthracene	< 1670
Benzidine	< 3030
Benzo(a)Anthracene	< 1670
Benzo(a)Pyrene	< 1670
Benzo(b+k)fluoranthenes	< 1670
Benzo(g,h,i)Perylene	< 1670
4-Bromophenyl-phenylether	< 1670
Butylbenzylphthalate	< 1670
bis(2-Chloroethoxy)Methane	< 1670
bis(2-Chloroethyl)Ether	< 1670
bis(2-Chloroisopropyl)Ether	< 1670
2-Chloronaphthalene	< 1670
4-Chlorophenyl-phenylether	< 1670
Chrysene	< 1670
Di-n-Butylphthalate	< 1670
Di-n-Octyl Phthalate	< 1670
Dibenz(a,h)Anthracene	< 1670
1,3-Dichlorobenzene	< 1670
1,2-Dichlorobenzene	< 1670
1,4-Dichlorobenzene	< 1670
3,3'-Dichlorobenzidine	< 3330
Diethylphthalate	< 1670
Dimethyl Phthalate	< 1670
2,4-Dinitrotoluene	< 1670
2,6-Dinitrotoluene	< 1670
1,2-Diphenylhydrazine	< 1670
bis(2-Ethylhexyl)Phthalate	< 1670
Fluoranthene	< 1670
Fluorene	< 1670
Hexachlorobenzene	< 1670
Hexachlorobutadiene	< 1670
Hexachlorocyclopentadiene	< 1670
Hexachloroethane	< 1670
Indeno(1,2,3-cd)Pyrene	< 1670

Table II-7. Continued

CLIENT SAMPLE ID: PHFB
 LAB SAMPLE ID: 2918
 SAMPLE DATE: 06/23/87
 EXTRACTION DATE: 06/24/87
 ANALYSIS DATE: 07/09/87
 FILE NAME: S2918
 INSTRUMENT ID: MS-A
 MATRIX: SOIL
 UNITS: UG/KG

COMPOUNDS

Isophorone	< 1670
N-Nitroso-Di-n-Propylamine	< 1670
N-Nitrosodimethylamine	< 1670
N-Nitrosodiphenylamine	< 1670
Naphthalene	< 1670
Nitrobenzene	< 1670
Phenanthrene	< 1670
Pyrene	< 1670
1,2,4-Trichlorobenzene	< 1670

C. OLD NPDES DISCHARGE CHANNEL

Table II-8. Results of analysis for base/neutral extractable compounds in a soil sample collected on 24 June 1987 from the Old NPDES Discharge Channel at Martin Marietta, The Dalles

CLIENT SAMPLE ID: ODCSC-1

LAB SAMPLE ID: 2932

SAMPLE DATE: 06/24/87

EXTRACTION DATE: 06/29/87

ANALYSIS DATE: 07/09/87

FILE NAME: S2932

INSTRUMENT ID: MS-A

MATRIX: SOIL

UNITS: UG/KG

COMPOUNDS

Acenaphthalene	< 1670
Acenaphthene	< 1670
Anthracene	< 1670
Benzidine	< 3030
Benzo(a)Anthracene	< 1670
Benzo(a)Pyrene	< 1670
Benzo(b+k)fluoranthenes	3700
Benzo(g,h,i)Perylene	< 1670
4-Bromophenyl-phenylether	< 1670
Butylbenzylphthalate	< 1670
bis(2-Chloroethoxy)Methane	< 1670
bis(2-Chloroethyl)Ether	< 1670
bis(2-Chloroisopropyl)Ether	< 1670
2-Chloronaphthalene	< 1670
4-Chlorophenyl-phenylether	< 1670
Chrysene	2710
Di-n-Butylphthalate	< 1670
Di-n-Octyl Phthalate	< 1670
Dibenz(a,h)Anthracene	< 1670
1,3-Dichlorobenzene	< 1670
1,2-Dichlorobenzene	< 1670
1,4-Dichlorobenzene	< 1670
3,3'-Dichlorobenzidine	< 3330
Diethylphthalate	< 1670
Dimethyl Phthalate	< 1670
2,4-Dinitrotoluene	< 1670
2,6-Dinitrotoluene	< 1670
1,2-Diphenylhydrazine	< 1670
bis(2-Ethylhexyl)Phthalate	< 1670
Fluoranthene	< 1670
Fluorene	< 1670
Hexachlorobenzene	< 1670
Hexachlorobutadiene	< 1670
Hexachlorocyclopentadiene	< 1670
Hexachloroethane	< 1670
Indeno(1,2,3-cd)Pyrene	< 1670

Table II-8. Continued

CLIENT SAMPLE ID: ODCSC-1

LAB SAMPLE ID: 2932

SAMPLE DATE: 06/24/87

EXTRACTION DATE: 06/29/87

ANALYSIS DATE: 07/09/87

FILE NAME: S2932

INSTRUMENT ID: MS-A

MATRIX: SOIL

UNITS: UG/KG

COMPOUNDS

Isophorone	< 1670
N-Nitroso-Di-n-Propylamine	< 1670
N-Nitrosodimethylamine	< 1670
N-Nitrosodiphenylamine	< 1670
Naphthalene	< 1670
Nitrobenzene	< 1670
Phenanthrene	< 1670
Pyrene	< 1670
1,2,4-Trichlorobenzene	< 1670

D. BATH RECOVERY AREA

Table II-9. Results of chemical analysis of soils samples collected on 24 June 1987 from the Bath Recovery Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/24/87	6/24/87				
ESM SAMPLE ID:	2934	2942				
CLIENT SAMPLE ID:	BRASC	SOILREP 4R				
NOTE:						
COMPOUNDS						
% solids	99	99				
sodium (mg/kg)	51,800	36,400				
Fluoride (mg/kg)	808 *	869 *				
total cyanide (mg/kg)	17	26				
free cyanide (mg/kg)	17	12				

* Batch leaching duplicate results not within QC limits. See QC table in Appendix C.

Table II-10. Results of chemical analysis of an aqueous field blank associated with soil samples collected on 24 June 1987 from the Bath Recovery Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/24/87					
ESI SAMPLE ID:	2933					
CLIENT SAMPLE ID:	BRFB					
NOTE:						
COMPOUNDS						
sodium (ug/L)	<1000					
Fluoride (mg/L) by IC	<1.6					
Fluoride (mg/L) by ISE	<1.0					
total cyanide (ug/L)	<10					
Free cyanide (ug/L)	<10					

E. METAL PAD STORAGE AREA

Table II-11. Results of chemical analysis of soil samples collected on 24 June 1987 from the Metal Pad Storage Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/24/87	6/24/87	6/24/87	6/24/87		
ESM SAMPLE ID:	2935	2936	2937	2941		
CLIENT SAMPLE ID:	MPASG	MPBSG	MPCSG	SOILREP 3R		
NOTE:						
COMPOUNDS						
% solids	97	99	99	98		
sodium (mg/kg)	49,800	19,900	19,500	50,000		
fluoride (mg/kg)	856 *	687 *	778 *	714 *		
total cyanide (mg/kg)	1.5	0.62	0.54	2.3		
free cyanide (mg/kg)	<0.52	<0.52	<0.50	<0.52		

* Batch leaching duplicate results not within QC limits. See QC table in Appendix C.

F. CATHODE WASH AREA

Table II-12. Results of chemical analysis of soil samples collected on 24 June 1987 from the Cathode Wash Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/24/87	6/24/87	6/24/87			
ESM SAMPLE ID:	2938	2939	2940			
CLIENT SAMPLE ID:	CWASG	CWBSG	CWCSG			
NOTE:						
COMPOUNDS						
% solids	98	98	98			
sodium (mg/kg)	6630	6690	16,900			
fluoride (mg/kg)	1170 *	1330 *	796 *			
total cyanide (mg/kg)	20	17	19			
free cyanide (mg/kg)	9.6	4.8	15			

* Batch leaching duplicate results not within QC limits. See QC table in Appendix C.

Table II-13. Results of chemical analysis of a soil sample collected on 26 June 1987 from the Cathode Wash Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/26/87					
ESI SAMPLE ID:	2991					
CLIENT SAMPLE ID:	CWASC-1					
NOTE:						
COMPOUNDS						
% solids	90					
sodium (mg/kg)	2930					
total cyanide (mg/kg)	7.3					
free cyanide (mg/kg)	0.56 *					

* Batch spike recovery not within QC limits. See QC table in Appendix C.

G. SALVAGE AREA

Table II-14. Results of chemical analysis of a soil sample collected on 26 June 1987 from the Salvage Area of Martin Marietta, The Dalles

	-1-	-2-	-3-	-4-	-5-	-6-
SAMPLE DATE:	6/26/87					
ESM SAMPLE ID:	2990					
CLIENT SAMPLE ID:	SASC					
NOTE:						
COMPOUNDS						
% solids	95					
sodium (mg/kg)	54,500					
total cyanide (mg/kg)	196					
free cyanide (mg/kg)	86 *					

* Batch spike recovery not within QC limits. See QC table in Appendix C.

Table II-15. Results of chemical analysis of an aqueous field blank associated with a soil sample collected on 26 June 1987 from the Salvage Area of Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/26/87					
ESM SAMPLE ID:	2992					
CLIENT SAMPLE ID:	SAFB					
NOTE:						
COMPOUNDS						
sodium (ug/L)	1000					
total cyanide (ug/L)	<10					
free cyanide (ug/L)	<10					

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H. OLD CATHODE WASTE PILE

Table II-16. Results of chemical analysis of soil samples collected on 26 June 1987
from the Old Cathode Waste Pile at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/26/87	6/26/87	6/26/87			
ESM SAMPLE ID:	2994	2993	2995			
CLIENT SAMPLE ID:	OCWPSC-A	OCWPSC-B	OCWPSC-C			
NOTE:						
COMPOUNDS						
% solids	86	90	93			
sodium (mg/kg)	4600	4380	10,900			
total cyanide (mg/kg)	29	26	19			
free cyanide (mg/kg)	0.72 *	<0.56 *	5.2 *			

* Batch spike recovery not within QC limits. See QC table in Appendix C.

SECTION III

AQUEOUS SAMPLES

A. LANDFILL DITCH

Table III-1. Results of analysis for volatile organic compounds in surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDWG	LDBWG	DLSW REP-1E
LAB SAMPLE ID:	2927	2929	2925
SAMPLE DATE:	06/23/87	06/23/87	06/23/87
ANALYSIS DATE:	06/26/87	06/29/87	06/25/87
FILE NAME:	V2927C	V2929B	V2925B
INSTRUMENT ID:	MS-C	MS-B	MS-B
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L
DILUTION FACTOR:	5	5	5
COMPOUNDS			
Acrolein	< 50	< 50	< 50
Acrylonitrile	< 50	< 50	< 50
Benzene	< 25	< 25	< 25
Bromodichloromethane	< 25	< 25	< 25
Bromoform	< 25	< 25	< 25
Bromomethane	< 25	< 25	< 25
Carbon Tetrachloride	< 25	< 25	< 25
Chlorobenzene	< 25	< 25	< 25
Chloroethane	< 25	< 25	< 25
2-Chloroethylvinylether	< 50	< 50	< 50
Chloroform	< 25	< 25	< 25
Chloromethane	< 25	< 25	< 25
Dibromochloromethane	< 25	< 25	< 25
1,3-Dichlorobenzene	< 25	< 25	< 25
1,2-Dichlorobenzene	< 25	< 25	< 25
1,4-Dichlorobenzene	< 25	< 25	< 25
1,1-Dichloroethane	< 25	< 25	< 25
1,2-Dichloroethane	< 25	< 25	< 25
1,1-Dichloroethene	< 25	< 25	< 25
1,2-Dichloropropane	< 25	< 25	< 25
trans-1,3-Dichloropropene	< 25	< 25	< 25
cis-1,3-Dichloropropene	< 25	< 25	< 25
Ethylbenzene	< 25	< 25	< 25
Methylene Chloride	< 25	< 25	< 25
1,1,2,2-Tetrachloroethane	< 25	< 25	< 25
Tetrachloroethene	< 25	< 25	< 25
Toluene	< 25	< 25	< 25
1,1,1-Trichloroethane	< 25	< 25	< 25
1,1,2-Trichloroethane	< 25	< 25	< 25
Trichloroethene	< 25	< 25	< 25
Trichlorofluoromethane	< 25	< 25	< 25
Vinyl Chloride *	< 5	< 5	< 5
cis-1,2-Dichloroethene	< 25	< 25	< 25
trans-1,2-Dichloroethene	< 25	< 25	< 25

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative. These limits should be multiplied by the dilution factor.

Table III-2. Results of analysis for volatile organic compounds in surface water samples collected on 2 August 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDWG	LDWG	DLSW
	REPEAT	REPEAT	REPEAT
LAB SAMPLE ID:	3340	3338	3339
SAMPLE DATE:	08/02/87	08/02/87	08/02/87
ANALYSIS DATE:	08/05/87	08/05/87	08/05/87
FILE NAME:	V3340C	V3338CRE	V3339C
INSTRUMENT ID:	MS-C	MS-C	MS-C
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L
DILUTION FACTOR:	20	20	20
COMPOUNDS			
Acrolein	< 200	< 200	< 200
Acrylonitrile	< 200	< 200	< 200
Benzene	< 100	< 100	< 100
Bromodichloromethane	< 100	< 100	< 100
Bromoform	< 100	< 100	< 100
Bromomethane	< 100	< 100	< 100
Carbon Tetrachloride	< 100	< 100	< 100
Chlorobenzene	< 100	< 100	< 100
Chloroethane	< 100	< 100	< 100
2-Chloroethylvinylether	< 200	< 200	< 200
Chloroform	< 100	< 100	< 100
Chloromethane	< 100	< 100	< 100
Dibromochloromethane	< 100	< 100	< 100
1,3-Dichlorobenzene	< 100	< 100	< 100
1,2-Dichlorobenzene	< 100	< 100	< 100
1,4-Dichlorobenzene	< 100	< 100	< 100
1,1-Dichloroethane	< 100	< 100	< 100
1,2-Dichloroethane	< 100	< 100	< 100
1,1-Dichloroethene	< 100	< 100	< 100
1,2-Dichloropropane	< 100	< 100	< 100
trans-1,3-Dichloropropene	< 100	< 100	< 100
cis-1,3-Dichloropropene	< 100	< 100	< 100
Ethylbenzene	< 100	< 100	< 100
Methylene Chloride	< 100	< 100	< 100
1,1,2,2-Tetrachloroethane	< 100	< 100	< 100
Tetrachloroethene	< 100	< 100	< 100
Toluene	< 100	< 100	< 100
1,1,1-Trichloroethane	< 100	< 100	< 100
1,1,2-Trichloroethane	< 100	< 100	< 100
Trichloroethene	< 100	< 100	< 100
Trichlorofluoromethane	< 100	< 100	< 100
Vinyl Chloride *	< 20	< 20	< 20
cis-1,2-Dichloroethene	< 100	< 100	< 100
trans-1,2-Dichloroethene	< 100	< 100	< 100

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative. These limits should be multiplied by the dilution factor.

Table III-3. Results of analysis for base/neutral acid extractable compounds in surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDAWG	LDBWG	DLSW- REPIE
LAB SAMPLE ID:	2927	2929	2925
SAMPLE DATE:	06/23/87	06/23/87	06/23/87
EXTRACTION DATE:	06/25/87	06/25/87	06/25/87
ANALYSIS DATE:	07/01/87	07/09/87	07/01/87
FILE NAME:	BNA2927	BNA2929	BNA2925
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L
COMPOUNDS			
Acenaphthalene	< 20	< 20	< 20
Acenaphthene	< 20	< 20	< 20
Anthracene	< 20	< 20	< 20
Benzidine	< 160	< 160	< 160
Benzo(a)Anthracene	< 20	< 20	25
Benzo(a)Pyrene	< 20	< 20	< 20
Benzo(b+k)fluoranthenes	23	< 20	41
Benzo(g,h,i)Perylene	< 20	< 20	< 20
4-Bromophenyl-phenylether	< 20	< 20	< 20
Butylbenzylphthalate	< 20	< 20	< 20
4-Chloro-3-Methylphenol	< 20	< 20	< 20
bis(2-Chloroethoxy)Methane	< 20	< 20	< 20
bis(2-Chloroethyl)Ether	< 20	< 20	< 20
bis(2-Chloroisopropyl)Ether	< 20	< 20	< 20
2-Chloronaphthalene	< 20	< 20	< 20
2-Chlorophenol	< 20	< 20	< 20
4-Chlorophenyl-phenylether	< 20	< 20	< 20
Chrysene	24	< 20	25
Di-n-Butylphthalate	< 20	< 20	< 20
Di-n-Octyl Phthalate	< 20	< 20	< 20
Dibenz(a,h)Anthracene	< 20	< 20	< 20
1,2-Dichlorobenzene	< 20	< 20	< 20
1,4-Dichlorobenzene	< 20	< 20	< 20
1,3-Dichlorobenzene	< 20	< 20	< 20
3,3'-Dichlorobenzidine	< 40	< 40	< 40
2,4-Dichlorophenol	< 20	< 20	< 20
Diethylphthalate	< 20	< 20	< 20
Dimethyl Phthalate	< 20	< 20	< 20
2,4-Dimethylphenol	< 20	< 20	< 20
4,6-Dinitro-2-Methylphenol	< 100	< 100	< 100
2,4-Dinitrophenol	< 100	< 100	< 100
2,4-Dinitrotoluene	< 20	< 20	< 20
2,6-Dinitrotoluene	< 20	< 20	< 20
1,2-Diphenylhydrazine	< 20	< 20	< 20
bis(2-Ethylhexyl)Phthalate	77	< 20	64
Fluoranthene	< 20	28	< 20

Table III-3. Continued

CLIENT SAMPLE ID:	LDAWG	LDBWG	DLSW- REPIE
LAB SAMPLE ID:	2927	2929	2925
SAMPLE DATE:	06/23/87	06/23/87	06/23/87
EXTRACTION DATE:	06/25/87	06/25/87	06/25/87
ANALYSIS DATE:	07/01/87	07/09/87	07/01/87
FILE NAME:	BNA2927	BNA2929	BNA2925
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L
COMPOUNDS			
Fluorene	< 20	< 20	< 20
Hexachlorobenzene	< 20	< 20	< 20
✓Hexachlorobutadiene	< 20	< 20	< 20
✓Hexachlorocyclopentadiene	< 20	< 20	< 20
Hexachloroethane	< 20	< 20	< 20
Indeno(1,2,3-cd)Pyrene	< 20	< 20	< 20
Isophorone	< 20	< 20	< 20
N-Nitroso-Di-n-Propylamine	< 20	< 20	< 20
N-Nitrosodimethylamine	< 10	< 10	< 10
N-Nitrosodiphenylamine	< 20	< 20	< 20
Naphthalene	< 20	< 20	< 20
Nitrobenzene	< 20	< 20	< 20
4-Nitrophenol	< 100	< 100	< 100
2-Nitrophenol	< 20	< 20	< 20
Pentachlorophenol	< 100	< 100	< 100
Phenanthrene	< 20	< 20	< 20
Phenol	< 20	< 20	< 20
Pyrene	21	< 20	32
1,2,4-Trichlorobenzene	< 20	< 20	< 20
2,4,6-Trichlorophenol	< 20	< 20	< 20

Table III-4. Results of analysis for base/neutral acid extractable compounds in surface water samples collected on 2 August 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDAWG	LDBWG	DLSW- REP-1E	LDBWG	DLSW- REP-1E
LAB SAMPLE ID:	3340	3338	3339	3338R	3339R
SAMPLE DATE:	08/02/87	08/02/87	08/02/87	08/02/87	08/02/87
EXTRACTION DATE:	08/04/87	08/04/87	08/04/87	08/10/87	08/10/87
ANALYSIS DATE:	08/08/87	08/07/87	08/07/87	08/19/87	08/19/87
FILE NAME:	BNA3340	BNA3338	BNA3339	BNA3338R	BNA3339R
INSTRUMENT ID:	MSA	MSA	MSA	MS-A	MS-A
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L	UG/L	UG/L
COMPOUNDS					
Acenaphthalene	< 100	< 100	< 100	< 100	< 100
Acenaphthene	< 100	< 100	< 100	< 100	< 100
Anthracene	< 100	< 100	< 100	< 100	< 100
Benzidine	< 800	< 800	< 800	< 800	< 800
Benzo(a)Anthracene	< 100	< 100	< 100	< 100	< 100
Benzo(a)Pyrene	< 100	< 100	< 100	< 100	< 100
Benzo(b+k)fluoranthenes	< 100	< 100	< 100	< 100	< 100
Benzo(g,h,i)Perylene	< 100	< 100	< 100	< 100	< 100
4-Bromophenyl-phenylether	< 100	< 100	< 100	< 100	< 100
Butylbenzylphthalate	< 100	< 100	< 100	< 100	< 100
4-Chloro-3-Methylphenol	< 100	< 100	< 100	< 100	< 100
bis(2-Chloroethoxy)Methane	< 100	< 100	< 100	< 100	< 100
bis(2-Chloroethyl)Ether	< 100	< 100	< 100	< 100	< 100
bis(2-Chloroisopropyl)Ether	< 100	< 100	< 100	< 100	< 100
2-Chloronaphthalene	< 100	< 100	< 100	< 100	< 100
2-Chlorophenol	< 100	< 100	< 100	< 100	< 100
4-Chlorophenyl-phenylether	< 100	< 100	< 100	< 100	< 100
Chrysene	< 100	< 100	< 100	< 100	< 100
Di-n-Butylphthalate	< 100	< 100	< 100	< 100	< 100
Di-n-Octyl Phthalate	< 100	< 100	< 100	< 100	< 100
Dibenz(a,h)Anthracene	< 100	< 100	< 100	< 100	< 100
1,2-Dichlorobenzene	< 100	< 100	< 100	< 100	< 100
1,4-Dichlorobenzene	< 100	< 100	< 100	< 100	< 100
1,3-Dichlorobenzene	< 100	< 100	< 100	< 100	< 100
3,3'-Dichlorobenzidine	< 200	< 200	< 200	< 200	< 200
2,4-Dichlorophenol	< 100	< 100	< 100	< 100	< 100
Diethylphthalate	< 100	< 100	< 100	< 100	< 100
Dimethyl Phthalate	< 100	< 100	< 100	< 100	< 100
2,4-Dimethylphenol	< 100	< 100	< 100	< 100	< 100
4,6-Dinitro-2-Methylphenol	< 500	< 500	< 500	< 500	< 500
2,4-Dinitrophenol	< 500	< 500	< 500	< 500	< 500
2,4-Dinitrotoluene	< 100	< 100	< 100	< 100	< 100
2,6-Dinitrotoluene	< 100	< 100	< 100	< 100	< 100
1,2-Diphenylhydrazine	< 100	< 100	< 100	< 100	< 100
bis(2-Ethylhexyl)Phthalate	< 100	< 100	< 100	< 100	< 100
Fluoranthene	< 100	< 100	< 100	< 100	< 100

Table III-4. Continued

CLIENT SAMPLE ID:	LDAWG	LDBWG	DLSW- REP-1E	LDBWG	DLSW- REP-1E
LAB SAMPLE ID:	3340	3338	3339	3338R	3339R
SAMPLE DATE:	08/02/87	08/02/87	08/02/87	08/02/87	08/02/87
EXTRACTION DATE:	08/04/87	08/04/87	08/04/87	08/10/87	08/10/87
ANALYSIS DATE:	08/08/87	08/07/87	08/07/87	08/19/87	08/19/87
FILE NAME:	BNA3340	BNA3338	BNA3339	BNA3338R	BNA3339R
INSTRUMENT ID:	MSA	MSA	MSA	MS-A	MS-A
MATRIX:	WATER	WATER	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L	UG/L	UG/L
COMPOUNDS					
Fluorene	< 100	< 100	< 100	< 100	< 100
Hexachlorobenzene	< 100	< 100	< 100	< 100	< 100
Hexachlorobutadiene	< 100	< 100	< 100	< 100	< 100
Hexachlorocyclopentadiene	< 100	< 100	< 100	< 100	< 100
Hexachloroethane	< 100	< 100	< 100	< 100	< 100
Indeno(1,2,3-cd)Pyrene	< 100	< 100	< 100	< 100	< 100
Isophorone	< 100	< 100	< 100	< 100	< 100
N-Nitroso-Di-n-Propylamine	< 100	< 100	< 100	< 100	< 100
N-Nitrosodimethylamine	< 50	< 50	< 50	< 50	< 50
N-Nitrosodiphenylamine	< 100	< 100	< 100	< 100	< 100
Naphthalene	< 100	< 100	< 100	< 100	< 100
Nitrobenzene	< 100	< 100	< 100	< 100	< 100
4-Nitrophenol	< 500	< 500	< 500	< 500	< 500
2-Nitrophenol	< 100	< 100	< 100	< 100	< 100
Pentachlorophenol	< 500	< 500	< 500	< 500	< 500
Phenanthrene	< 100	< 100	< 100	< 100	< 100
Phenol	< 100	< 100	< 100	< 100	< 100
Pyrene	< 100	< 100	< 100	< 100	< 100
1,2,4-Trichlorobenzene	< 100	< 100	< 100	< 100	< 100
2,4,6-Trichlorophenol	< 100	< 100	< 100	< 100	< 100

Table III-5. Results of chemical analysis of surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/23/87	6/23/87	6/23/87			
ESI SAMPLE ID:	2927	2929	2925			
CLIENT SAMPLE ID:	LOAWG	LOBWG	DLSW-Rep1E			
NOTE:						
COMPOUNDS						
calcium (ug/L)	<5000	<5000	<5000			
magnesium (ug/L)	<5000	<5000	<5000			
potassium (ug/L)	146,000	104,000	98,200			
sodium (ug/L)	36.6 E+6	37.3 E+6	37.6 E+6			
chloride (mg/L)	826	645	748			
fluoride (mg/L) by IC	7200	4650	5080			
fluoride (mg/L) by ISE	7620	5750	5400			
sulfate (mg/L) by IC	10,600	11,800	11,600			
sulfate (mg/L) turbidimetric	10,500	12,000	11,000			
bicarbonate alkalinity (mg/L) (as CaCO3)	16,000	16,000	15,000			
carbonate alkalinity (mg/L) (as CaCO3)	42,000	46,500	47,500			
total cyanide (ug/L)	NT *	NT	NT			
free cyanide (ug/L)	NT	NT	NT			

* Not tested

Table III-6. Results of chemical analysis of surface water samples collected on 2 August 1987 from the Landfill Ditch at Martin Marietta, The Dalles :

	1	2	3	4	5	6
SAMPLE DATE:	8/2/87	8/2/87	8/2/87			
ESM SAMPLE ID:	3340	3338	3339			
CLIENT SAMPLE ID:	LDAWG	LDBWG	DLSW-Rep1E			
NOTE:	resampling	resampling	resampling			
COMPOUNDS						
calcium (ug/L)	<5000	7100	16,400			
magnesium (ug/L)	<5000	<5000	<5000			
potassium (ug/L)	169,000	606,000	798,000			
sodium (ug/L)	68.0 E+6	79.2 E+6	99.8 E+6			
chloride (mg/L)	1210	3140	3430			
Fluoride (mg/L) by IC	7840	8440	10,800			
Fluoride (mg/L) by ISE	6880	8000	7750			
sulfate (mg/L) by IC	17,600	41,000	45,100			
sulfate (mg/L) turbidimetric	15,200	39,900	42,300			
bicarbonate alkalinity (mg/L) (as CaCO3)	33,500	63,500	36,000			
carbonate alkalinity (mg/L) (as CaCO3)	73,000	76,500	73,000			
total cyanide (ug/L)	373,000 *	1.09 E+6 *	1.28 E+6 *			
Free cyanide (ug/L)	34,200	77,200	59,700			

* Batch spike recovery not within QC limits.

Table III-7. Results of analysis for volatile organic compounds in an aqueous field blank associated with surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDFB
LAB SAMPLE ID:	2930
SAMPLE DATE:	06/23/87
ANALYSIS DATE:	06/29/87
FILE NAME:	V2930B
INSTRUMENT ID:	MS-8
MATRIX:	WATER
UNITS:	UG/L
DILUTION FACTOR:	1
COMPOUNDS	
Acrolein	< 10
Acrylonitrile	< 10
Benzene	< 5
Bromodichloromethane	< 5
Bromoform	< 5
Bromomethane	< 5
Carbon Tetrachloride	< 5
Chlorobenzene	< 5
Chloroethane	< 5
2-Chloroethylvinylether	< 10
Chloroform	< 5
Chloromethane	< 5
Dibromochloromethane	< 5
1,3-Dichlorobenzene	< 5
1,2-Dichlorobenzene	< 5
1,4-Dichlorobenzene	< 5
1,1-Dichloroethane	< 5
1,2-Dichloroethane	< 5
1,1-Dichloroethene	< 5
1,2-Dichloropropane	< 5
trans-1,3-Dichloropropene	< 5
cis-1,3-Dichloropropene	< 5
Ethylbenzene	< 5
Methylene Chloride	< 5
1,1,2,2-Tetrachloroethane	< 5
Tetrachloroethene	< 5
Toluene	< 5
1,1,1-Trichloroethane	< 5
1,1,2-Trichloroethane	< 5
Trichloroethene	< 5
Trichlorofluoromethane	< 5
Vinyl Chloride *	< 1
cis-1,2-Dichloroethene	< 5
trans-1,2-Dichloroethene	< 5

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative.

Table III-8. Results of analysis for volatile organic compounds in an aqueous field blank associated with surface water samples collected on 2 August 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDFB
LAB SAMPLE ID:	3341
SAMPLE DATE:	08/02/87
ANALYSIS DATE:	08/05/87
FILE NAME:	V3341C
INSTRUMENT ID:	MS-C
MATRIX:	WATER
UNITS:	UG/L
DILUTION FACTOR:	1
COMPOUNDS	
Acrolein	< 10
Acrylonitrile	< 10
Benzene	< 5
Bromodichloromethane	< 5
Bromoform	< 5
Bromomethane	< 5
Carbon Tetrachloride	< 5
Chlorobenzene	< 5
Chloroethane	< 5
2-Chloroethylvinylether	< 10
Chloroform	< 5
Chloromethane	< 5
Dibromochloromethane	< 5
1,3-Dichlorobenzene	< 5
1,2-Dichlorobenzene	< 5
1,4-Dichlorobenzene	< 5
1,1-Dichloroethane	< 5
1,2-Dichloroethane	< 5
1,1-Dichloroethene	< 5
1,2-Dichloropropane	< 5
trans-1,3-Dichloropropene	< 5
cis-1,3-Dichloropropene	< 5
Ethylbenzene	< 5
Methylene Chloride	< 5
1,1,2,2-Tetrachloroethane	< 5
Tetrachloroethene	< 5
Toluene	< 5
1,1,1-Trichloroethane	< 5
1,1,2-Trichloroethane	< 5
Trichloroethene	< 5
Trichlorofluoromethane	< 5
Vinyl Chloride *	< 1
cis-1,2-Dichloroethene	< 5
trans-1,2-Dichloroethene	< 5

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative.

Table III-9. Results of analysis for base/neutral acid extractable compounds in an aqueous field blank associated with surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDFB
LAB SAMPLE ID:	2930
SAMPLE DATE:	06/23/87
EXTRACTION DATE:	06/25/87
ANALYSIS DATE:	07/09/87
FILE NAME:	BNA2930
INSTRUMENT ID:	MS-A
MATRIX:	WATER
UNITS:	UG/L
COMPOUNDS	
Acenaphthalene	< 10
Acenaphthene	< 10
Anthracene	< 10
Benzidine	< 80
Benzo(a)Anthracene	< 10
Benzo(a)Pyrene	< 10
Benzo(b+k)fluoranthenes	< 10
Benzo(g,h,i)Perylene	< 10
4-Bromophenyl-phenylether	< 10
Butylbenzylphthalate	< 10
4-Chloro-3-Methylphenol	< 10
bis(2-Chloroethoxy)Methane	< 10
bis(2-Chloroethyl)Ether	< 10
bis(2-Chloroisopropyl)Ether	< 10
2-Chloronaphthalene	< 10
2-Chlorophenol	< 10
4-Chlorophenyl-phenylether	< 10
Chrysene	< 10
Di-n-Butylphthalate	< 10
Di-n-Octyl Phthalate	< 10
Dibenz(a,h)Anthracene	< 10
1,2-Dichlorobenzene	< 10
1,4-Dichlorobenzene	< 10
1,3-Dichlorobenzene	< 10
3,3'-Dichlorobenzidine	< 20
2,4-Dichlorophenol	< 10
Diethylphthalate	< 10
Dimethyl Phthalate	< 10
2,4-Dimethylphenol	< 10
4,6-Dinitro-2-Methylphenol	< 50
2,4-Dinitrophenol	< 50
2,4-Dinitrotoluene	< 10
2,6-Dinitrotoluene	< 10
1,2-Diphenylhydrazine	< 10
bis(2-Ethylhexyl)Phthalate	< 10
Fluoranthene	< 10

Table III-9. Continued

CLIENT SAMPLE ID: LDFB
LAB SAMPLE ID: 2930
SAMPLE DATE: 06/23/87
EXTRACTION DATE: 06/25/87
ANALYSIS DATE: 07/09/87
FILE NAME: BNA2930
INSTRUMENT ID: MS-A
MATRIX: WATER
UNITS: UG/L

COMPOUNDS

Fluorene	< 10
Hexachlorobenzene	< 10
Hexachlorobutadiene	< 10
Hexachlorocyclopentadiene	< 10
Hexachloroethane	< 10
Indeno(1,2,3-cd)Pyrene	< 10
Isophorone	< 10
N-Nitroso-Di-n-Propylamine	< 10
N-Nitrosodimethylamine	< 5
N-Nitrosodiphenylamine	< 10
Naphthalene	< 10
Nitrobenzene	< 10
4-Nitrophenol	< 50
2-Nitrophenol	< 10
Pentachlorophenol	< 50
Phenanthrene	< 10
Phenol	< 10
Pyrene	< 10
1,2,4-Trichlorobenzene	< 10
2,4,6-Trichlorophenol	< 10

Table III-10. Results of analysis for base/neutral acid extractable compounds in an aqueous field blank associated with surface water samples collected on 2 August 1987 at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	LDFB
LAB SAMPLE ID:	3341
SAMPLE DATE:	08/02/87
EXTRACTION DATE:	08/04/87
ANALYSIS DATE:	08/08/87
FILE NAME:	BNA3341
INSTRUMENT ID:	MSA
MATRIX:	WATER
UNITS:	UG/L
COMPOUNDS	
Acenaphthalene	< 100
Acenaphthene	< 100
Anthracene	< 100
Benzidine	< 800
Benzo(a)Anthracene	< 100
Benzo(a)Pyrene	< 100
Benzo(b+k)fluoranthenes	< 100
Benzo(g, h, i)Perylene	< 100
4-Bromophenyl-phenylether	< 100
Butylbenzylphthalate	< 100
4-Chloro-3-Methylphenol	< 100
bis(2-Chloroethoxy)Methane	< 100
bis(2-Chloroethyl)Ether	< 100
bis(2-Chloroisopropyl)Ether	< 100
2-Chloronaphthalene	< 100
2-Chlorophenol	< 100
4-Chlorophenyl-phenylether	< 100
Chrysene	< 100
Di-n-Butylphthalate	< 100
Di-n-Octyl Phthalate	< 100
Dibenz(a, h)Anthracene	< 100
1,2-Dichlorobenzene	< 100
1,4-Dichlorobenzene	< 100
1,3-Dichlorobenzene	< 100
3,3'-Dichlorobenzidine	< 200
2,4-Dichlorophenol	< 100
Diethylphthalate	< 100
Dimethyl Phthalate	< 100
2,4-Dimethylphenol	< 100
4,6-Dinitro-2-Methylphenol	< 500
2,4-Dinitrophenol	< 500
2,4-Dinitrotoluene	< 100
2,6-Dinitrotoluene	< 100
1,2-Diphenylhydrazine	< 100
bis(2-Ethylhexyl)Phthalate	206
Fluoranthene	< 100

Table III-10. Continued

CLIENT SAMPLE ID: LDFB
LAB SAMPLE ID: 3341
SAMPLE DATE: 08/02/87
EXTRACTION DATE: 08/04/87
ANALYSIS DATE: 08/08/87
FILE NAME: BNA3341
INSTRUMENT ID: MSA
MATRIX: WATER
UNITS: UG/L

COMPOUNDS

Fluorene	< 100
Hexachlorobenzene	< 100
Hexachlorobutadiene	< 100
Hexachlorocyclopentadiene	< 100
Hexachloroethane	< 100
Indeno(1,2,3-cd)Pyrene	< 100
Isophorone	< 100
N-Nitroso-Di-n-Propylamine	< 100
N-Nitrosodimethylamine	< 50
N-Nitrosodiphenylamine	< 100
Naphthalene	< 100
Nitrobenzene	< 100
4-Nitrophenol	< 500
2-Nitrophenol	< 100
Pentachlorophenol	< 500
Phenanthrene	< 100
Phenol	< 100
Pyrene	< 100
1,2,4-Trichlorobenzene	< 100
2,4,6-Trichlorophenol	< 100

Table III-11. Results of chemical analysis of an aqueous field blank associated with surface water samples collected on 23 June 1987 from the Landfill Ditch at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/23/87					
ESH SAMPLE ID:	2930					
CLIENT SAMPLE ID:	LDFB					
NOTE:						
COMPOUNDS						
chloride (ug/L)	<1.1					
fluoride (mg/L) by IC	<1.6					
fluoride (mg/L) by ISE	<1.0					
sulfate (mg/L) by IC	<2.0					
sulfate (mg/L) turbidimetric	<5.0					
bicarbonate alkalinity (mg/L) (as CaCO ₃)	<10					
carbonate alkalinity (mg/L) (as CaCO ₃)	<10					
free cyanide (ug/L)	NT *					
total cyanide (ug/L)	NT					

* Not tested

Table III-12. Results of chemical analysis of an aqueous field blank associated with surface water samples collected on 2 August 1987 from the Landfill Ditch at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	8/2/87					
ESI SAMPLE ID:	3341					
CLIENT SAMPLE ID:	LDFB					
NOTE:	resampling					
COMPOUNDS						
calcium (ug/L)	<500					
magnesium (ug/L)	<500					
potassium (ug/L)	<1000					
sodium (ug/L)	1050					
chloride (mg/L)	<1.0					
fluoride (mg/L) by IC	<1.6					
fluoride (mg/L) by ISE	<1.0					
sulfate (mg/L) by IC	<2.0					
sulfate (mg/L) turbidimetric	<5.0					
bicarbonate alkalinity (mg/L) (as CaCO3)	<10					
carbonate alkalinity (mg/L) (as CaCO3)	<10					
total cyanide (ug/L)	<10					
free cyanide (ug/L)	<10					

B. SCRUBBER PIPE EFFLUENT

Table III-13. Results of analysis for volatile organic compounds in scrubber pipe effluent collected on 26 June 1987 at Martin Marietta, The Dalles

CLIENT SAMPLE ID: SCRUBBER	
PIPE-EFF	
LAB SAMPLE ID: 2989	
SAMPLE DATE: 06/26/87	
ANALYSIS DATE: 06/30/87	
FILE NAME: V2989BR	
INSTRUMENT ID: MS-8	
MATRIX: WATER	
UNITS: UG/L	
DILUTION FACTOR: 1	
COMPOUNDS	
Acrolein	< 10
Acrylonitrile	< 10
Benzene	< 5
Bromodichloromethane	< 5
Bromoform	< 5
Bromomethane	< 5
Carbon Tetrachloride	< 5
Chlorobenzene	< 5
Chloroethane	< 5
2-Chloroethylvinylether	< 10
Chloroform	< 5
Chloromethane	< 5
Dibromochloromethane	< 5
1,3-Dichlorobenzene	< 5
1,2-Dichlorobenzene	< 5
1,4-Dichlorobenzene	< 5
1,1-Dichloroethane	< 5
1,2-Dichloroethane	< 5
1,1-Dichloroethene	< 5
1,2-Dichloropropane	< 5
trans-1,3-Dichloropropene	< 5
cis-1,3-Dichloropropene	< 5
Ethylbenzene	< 5
Methylene Chloride	< 5
1,1,2,2-Tetrachloroethane	< 5
Tetrachloroethene	< 5
Toluene	< 5
1,1,1-Trichloroethane	< 5
1,1,2-Trichloroethane	< 5
Trichloroethene	< 5
Trichlorofluoromethane	< 5
Vinyl Chloride*	< 1
cis-1,2-Dichloroethene	< 5
trans-1,2-Dichloroethene	< 5

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative.

Table III-14. Results of analysis for base/neutral acid extractable compounds in an aqueous scrubber pipe effluent sample collected on 26 June 1987 at Martin Marietta, The Dalles

CLIENT SAMPLE ID: SCRUBBER
PIPE-EFF
LAB SAMPLE ID: 2989
SAMPLE DATE: 06/26/87
EXTRACTION DATE: 06/29/87
ANALYSIS DATE: 07/09/87
FILE NAME: BNA2989
INSTRUMENT ID: MS-A
MATRIX: WATER
UNITS: UG/L

COMPOUNDS

Acenaphthalene	< 20
Acenaphthene	<u>28</u>
Anthracene	< 20
Benzidine	< 160
Benzo(a)Anthracene	<u>118</u>
Benzo(a)Pyrene	<u>24</u>
Benzo(b+k)fluoranthenes	<u>96</u>
Benzo(g,h,i)Perylene	< 20
4-Bromophenyl-phenylether	< 20
Butylbenzylphthalate	< 20
4-Chloro-3-Methylphenol	< 20
bis(2-Chloroethoxy)Methane	< 20
bis(2-Chloroethyl)Ether	< 20
bis(2-Chloroisopropyl)Ether	< 20
2-Chloronaphthalene	< 20
2-Chlorophenol	< 20
4-Chlorophenyl-phenylether	< 20
Chrysene	<u>134</u>
Di-n-Butylphthalate	< 20
Di-n-Octyl Phthalate	< 20
Dibenz(a,h)Anthracene	< 20
1,2-Dichlorobenzene	< 20
1,4-Dichlorobenzene	< 20
1,3-Dichlorobenzene	< 20
3,3'-Dichlorobenzidine	< 40
2,4-Dichlorophenol	< 20
Diethylphthalate	< 20
Dimethyl Phthalate	< 20
2,4-Dimethylphenol	< 20
4,6-Dinitro-2-Methylphenol	< 100
2,4-Dinitrophenol	< 100
2,4-Dinitrotoluene	< 20
2,6-Dinitrotoluene	< 20
1,2-Diphenylhydrazine	< 20
bis(2-Ethylhexyl)Phthalate	< 20
Fluoranthene	<u>616</u>

Table III-14. Continued

CLIENT SAMPLE ID: SCRUBBER
PIPE-EFF
LAB SAMPLE ID: 2989
SAMPLE DATE: 06/26/87
EXTRACTION DATE: 06/29/87
ANALYSIS DATE: 07/09/87
FILE NAME: BNA2989
INSTRUMENT ID: MS-A
MATRIX: WATER
UNITS: UG/L

COMPOUNDS

Fluorene	< 20
Hexachlorobenzene	< 20
Hexachlorobutadiene	< 20
Hexachlorocyclopentadiene	< 20
Hexachloroethane	< 20
Indeno(1,2,3-cd)Pyrene	<u>25</u>
Isophorone	< 20
N-Nitroso-Di-n-Propylamine	< 20
N-Nitrosodimethylamine	< 10
N-Nitrosodiphenylamine	< 20
Naphthalene	< 20
Nitrobenzene	< 20
4-Nitrophenol	< 100
2-Nitrophenol	< 20
Pentachlorophenol	< 100
Phenanthrene	< 20
Phenol	< 20
Pyrene	<u>360</u>
1,2,4-Trichlorobenzene	< 20
2,4,6-Trichlorophenol	< 20

Table III-15. Results of chemical analysis of an aqueous sample of scrubber pipe effluent collected on 26 June 1987 at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/26/87					
ESM SAMPLE ID:	2989					
CLIENT SAMPLE ID:	SCRUBRPIPE					
NOTE:	EFFLUENT					
COMPOUNDS						
sodium (ug/L)	2.55 E+6					
Fluoride (mg/L) by IC	137					
Fluoride (mg/L) by ISE	120					
total cyanide (ug/L)	53					
free cyanide (ug/L)	<10					

C. OLD CATHODE WASTE PILE

Table III-16. Results of analysis for volatile organic compounds in an aqueous sample collected on 26 June 1987 from Pit B at the Old Cathode Waste Pile at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	OCWP
	PITB-H20
LAB SAMPLE ID:	2988
SAMPLE DATE:	06/26/87
ANALYSIS DATE:	06/30/87
FILE NAME:	V29888
INSTRUMENT ID:	MS-8
MATRIX:	WATER
UNITS:	UG/L
DILUTION FACTOR:	1
COMPOUNDS	
Acrolein	< 10
Acrylonitrile	< 10
Benzene	< 5
Bromodichloromethane	< 5
Bromoform	< 5
Bromomethane	< 5
Carbon Tetrachloride	< 5
Chlorobenzene	< 5
Chloroethane	< 5
2-Chloroethylvinylether	< 10
Chloroform	< 5
Chloromethane	< 5
Dibromochloromethane	< 5
1,3-Dichlorobenzene	< 5
1,2-Dichlorobenzene	< 5
1,4-Dichlorobenzene	< 5
1,1-Dichloroethane	< 5
1,2-Dichloroethane	< 5
1,1-Dichloroethene	< 5
1,2-Dichloropropane	< 5
trans-1,3-Dichloropropene	< 5
cis-1,3-Dichloropropene	< 5
Ethylbenzene	< 5
Methylene Chloride	< 5
1,1,2,2-Tetrachloroethane	< 5
Tetrachloroethene	< 5
Toluene	< 5
1,1,1-Trichloroethane	< 5
1,1,2-Trichloroethane	< 5
Trichloroethene	< 5
Trichlorofluoromethane	< 5
Vinyl Chloride *	< 1
cis-1,2-Dichloroethene	< 5
trans-1,2-Dichloroethene	< 5

*Any amount detected between the level of detection (LOD = 1 ppb) and the level of quantitation (LOQ = 5 ppb) is marked with an * and should be considered qualitative.

Table III-17. Results of analysis for base/neutral acid extractable compounds in an aqueous sample collected on 26 June 1987 from Pit B at the Old Cathode Waste Pile at Martin Marietta, The Dalles

CLIENT SAMPLE ID:	OCWP
	PIT-H20
LAB SAMPLE ID:	2988
SAMPLE DATE:	06/26/87
EXTRACTION DATE:	06/29/87
ANALYSIS DATE:	07/09/87
FILE NAME:	BNA2988
INSTRUMENT ID:	MS-A
MATRIX:	WATER
UNITS:	UG/L
COMPOUNDS	
Acenaphthalene	< 20
Acenaphthene	< 20
Anthracene	< 20
Benztidine	< 160
Benzo(a)Anthracene	<u>24</u>
Benzo(a)Pyrene	< 20
Benzo(b+k)fluoranthenes	<u>48</u>
Benzo(g,h,i)Perylene	< 20
4-Bromophenyl-phenylether	< 20
Butylbenzylphthalate	< 20
4-Chloro-3-Methylphenol	< 20
bis(2-Chloroethoxy)Methane	< 20
bis(2-Chloroethyl)Ether	< 20
bis(2-Chloroisopropyl)Ether	< 20
2-Chloronaphthalene	< 20
2-Chlorophenol	< 20
4-Chlorophenyl-phenylether	< 20
Chrysene	<u>38</u>
Di-n-Butylphthalate	< 20
Di-n-Octyl Phthalate	< 20
Dibenz(a,h)Anthracene	< 20
1,2-Dichlorobenzene	< 20
1,4-Dichlorobenzene	< 20
1,3-Dichlorobenzene	< 20
3,3'-Dichlorobenzidine	< 40
2,4-Dichlorophenol	< 20
Diethylphthalate	< 20
Dimethyl Phthalate	< 20
2,4-Dimethylphenol	< 20
4,6-Dinitro-2-Methylphenol	< 100
2,4-Dinitrophenol	< 100
2,4-Dinitrotoluene	< 20
2,6-Dinitrotoluene	< 20
1,2-Diphenylhydrazine	< 20
bis(2-Ethylhexyl)Phthalate	< 20
Fluoranthene	<u>50</u>

Table III-17. Continued

CLIENT SAMPLE ID: OCWP
PIT-H20
LAB SAMPLE ID: 2988
SAMPLE DATE: 06/26/87
EXTRACTION DATE: 06/29/87
ANALYSIS DATE: 07/09/87
FILE NAME: BNA2988
INSTRUMENT ID: MS-A
MATRIX: WATER
UNITS: UG/L

COMPOUNDS

Fluorene	< 20
Hexachlorobenzene	< 20
Hexachlorobutadiene	< 20
Hexachlorocyclopentadiene	< 20
Hexachloroethane	< 20
Indeno(1,2,3-cd)Pyrene	< 20
Isophorone	< 20
N-Nitroso-Di-n-Propylamine	< 20
N-Nitrosodimethylamine	< 10
N-Nitrosodiphenylamine	< 20
Naphthalene	< 20
Nitrobenzene	< 20
4-Nitrophenol	< 100
2-Nitrophenol	< 20
Pentachlorophenol	< 100
Phenanthrene	29
Phenol	< 20
Pyrene	66
1,2,4-Trichlorobenzene	< 20
2,4,6-Trichlorophenol	< 20

Table III-18. Results of chemical analysis of an aqueous sample collected on 26 June 1987 from Pit B at the Old Cathode Waste Pile at Martin Marietta, The Dalles

	1	2	3	4	5	6
SAMPLE DATE:	6/26/87					
ESM SAMPLE ID:	2988					
CLIENT SAMPLE ID:	OCWP-Pit B					
NOTE:						
COMPOUNDS						
sodium (ug/L)	10.5 E+6					
fluoride (mg/L) by IC	3730					
fluoride (mg/L) by ISE	3000					
total cyanide (ug/L)	294,000					
free cyanide (ug/L)	3010					

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MARTIN MARIETTA ALUMINUM REDUCTION
PLANT, THE DALLES, OREGON, TASK ORDER
FOR LABORATORY SERVICES
(NO. 901-999-701)
(CONTRACT NO. 87-ETMF-002):
ANALYTICAL DATA FOR AQUEOUS
SAMPLES COLLECTED BETWEEN
27 JULY AND 1 SEPTEMBER 1987

Prepared for

Geraghty & Miller, Inc.
3820 Northdale Boulevard
Suite 200
Tampa, FL 33624

Prepared by

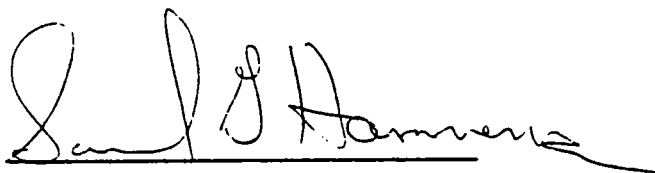
Versar, Inc.
ESM Operations
Analytical Chemistry Services
9200 Rumsey Road
Columbia, MD 21045

29 September 1987

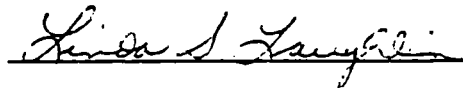
C-305

FOREWORD

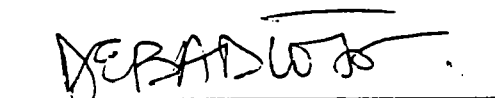
Versar, Inc., ESM Operations performed the work presented in this report according to the "Task Order for Laboratory Services" (Contract No. 87-ETMF-002 with Martin Marietta Corporation).



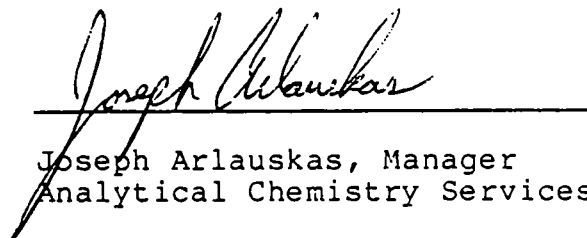
Samuel G. Hamner, III
Organics Lab Manager



Linda S. Laughlin
Acting Inorganics Lab
Manager



David Y. Badio
QA/QC Coordinator



Joseph Arlauskas, Manager
Analytical Chemistry Services

B. DATA

SECTION II

INORGANIC ANALYSES

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWR-8B	MWR-8A	MWR-8A-FB
Sample Number:	870729-008	870729-009	870729-010
Date Received:	29-JUL-1987	29-JUL-1987	29-JUL-1987
Date Sampled:	27-JUL-1987	28-JUL-1987	28-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	27,900	25,100	<500	ug/L
magnesium	11,800	7570	<500	ug/L
potassium	8550	9710	<1000	ug/L
sodium	41,700	39,900	<1000	ug/L
sodium (total)	43,700	42,700	<1000	ug/L
bicarbonate alkalinity	158	128	<1.0	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	14	6.8	<0.25	mg/L
cyanide, free	62	30	<10	ug/L
cyanide, total	1220	1780	<10	ug/L
fluoride by IC	2.4	<1.6	<1.6	mg/L
fluoride by ISE	2.9	1.0	<1.0	mg/L
sulfate by IC	53	52	<2.0	mg/L
sulfate, turbidimetric	61	76	<5.0	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWREP-4	MWR-6B	MW-12A
Sample Number:	870729-011	870730-001	870730-002
Date Received:	29-JUL-1987	30-JUL-1987	30-JUL-1987
Date Sampled:	28-JUL-1987	28-JUL-1987	28-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	24,400	41,400	14,600	ug/L
magnesium	7590	20,400	6630	ug/L
potassium	9270	8000	6290	ug/L
sodium	39,600	24,600	26,500	ug/L
sodium (total)	43,000	25,100	29,500	ug/L
bicarbonate alkalinity	120	230	116	mg/L
carbonate alkalinity	16	<1.0	<1.0	mg/L
chloride, titrimetric	9.8	8.8	4.8	mg/L
cyanide, free	35	51	<10	ug/L
cyanide, total	1840	1120	96	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	51	68	15	mg/L
sulfate, turbidimetric	72	73	<5.0	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWREP-3	MW-18A	MW-12B
Sample Number:	870730-003	870730-004	870730-005
Date Received:	30-JUL-1987	30-JUL-1987	30-JUL-1987
Date Sampled:	28-JUL-1987	29-JUL-1987	29-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	38,900	30,800	24,000	ug/L
magnesium	19,500	14,000	12,900	ug/L
potassium	7440	9330	6000	ug/L
sodium	22,800	42,300	15,300	ug/L
sodium (total)	26,600	46,700	17,400	ug/L
bicarbonate alkalinity	182	162	150	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	8.8	9.8	4.8	mg/L
cyanide, free	76	<10	20	ug/L
cyanide, total	790	<10	99	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	69	70	19	mg/L
sulfate, turbidimetric	85	81	9.4	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-12B-FB	MW-13A	MW-13B
Sample Number:	870730-006	870731-001	870731-002
Date Received:	30-JUL-1987	31-JUL-1987	31-JUL-1987
Date Sampled:	29-JUL-1987	29-JUL-1987	30-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	<500	19,600	24,400	ug/L
magnesium	<500	7200	12,800	ug/L
potassium	<1000	7870	6280	ug/L
sodium	<1000	19,900	14,200	ug/L
sodium (total)	<1000	20,900	14,800	ug/L
bicarbonate alkalinity	<1.0	110	129	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	0.25	5.1	5.1	mg/L
cyanide, free	<10	37	22	ug/L
cyanide, total	<10	241	138	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	<2.0	21	23	mg/L
sulfate, turbidimetric	<5.0	21	20	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-14A	MW-14B	MW-17S
Sample Number:	870731-003	870731-004	870731-005
Date Received:	31-JUL-1987	31-JUL-1987	31-JUL-1987
Date Sampled:	29-JUL-1987	29-JUL-1987	30-JUL-1987
Matrix:	WATER	WATER	WATER

* Compounds		** Results **			Units
calcium	17,100	34,100	74,900		ug/L
magnesium	6670	17,200	30,300		ug/L
potassium	7200	7180	3860		ug/L
sodium	30,900	23,600	28,800		ug/L
sodium (total)	31,800	24,800	31,400		ug/L
bicarbonate alkalinity	93	152	280		mg/L
carbonate alkalinity	<1.0	<1.0	<1.0		mg/L
chloride, titrimetric	3.8	7.0	9.6		mg/L
cyanide, free	<10	41	27		ug/L
cyanide, total	23	641	549		ug/L
fluoride by IC	<1.6	<1.6	<1.6		mg/L
fluoride by ISE	1.0	<1.0	<1.0		mg/L
sulfate by IC	20	69	95		mg/L
sulfate, turbidimetric	77	72	1130		mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-19S	MWREP-7	MW-20S
Sample Number:	870731-006	870731-007	870803-001
Date Received:	31-JUL-1987	31-JUL-1987	3-AUG-1987
Date Sampled:	30-JUL-1987	30-JUL-1987	30-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	213,000	20,700	26,000	ug/L
magnesium	107,000	10,700	5660	ug/L
potassium	11,400	5970	9730	ug/L
sodium	243,000	13,600	45,300	ug/L
sodium (total)	246,000	14,400	49,900	ug/L
bicarbonate alkalinity	359	131	133	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	26	4.5	8.3	mg/L
cyanide, free	<10	29	<10	ug/L
cyanide, total	<10	139	<10	ug/L
fluoride by IC	6.4	<1.6	<1.6	mg/L
fluoride by ISE	4.8	<1.0	<1.0	mg/L
sulfate by IC	1310	23	54	mg/L
sulfate, turbidimetric	117	21	66	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-23S	MW-26S	MWREP-8
Sample Number:	870803-002	870803-003	870803-004
Date Received:	3-AUG-1987	3-AUG-1987	3-AUG-1987
Date Sampled:	31-JUL-1987	31-JUL-1987	30-JUL-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	23,300	13,300	22,500	ug/L
magnesium	5530	4230	5790	ug/L
potassium	8170	7180	10,100	ug/L
sodium	17,100	28,600	46,300	ug/L
sodium (total)	18,800	32,300	50,500	ug/L
bicarbonate alkalinity	100	82	137	mg/L
carbonate alkalinity	<1.0	18	<1.0	mg/L
chloride, titrimetric	6.4	7.7	7.7	mg/L
cyanide, free	15	<10	21	ug/L
cyanide, total	180	<10	262	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	23	18	49	mg/L
sulfate, turbidimetric	16	22	49	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	CCSWG-1	MW-4S	MW-22S
Sample Number:	870804-012	870804-013	870804-014
Date Received:	4-AUG-1987	4-AUG-1987	4-AUG-1987
Date Sampled:	2-AUG-1987	2-AUG-1987	2-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	27,300	35,800	15,100	ug/L
magnesium	16,000	10,000	4320	ug/L
potassium	4060	8570	5560	ug/L
sodium	18,100	4480	32,900	ug/L
sodium (total)	18,400	12,900	32,000	ug/L
bicarbonate alkalinity	144	97	112	mg/L
carbonate alkalinity	<1.0	<1.0	18	mg/L
chloride, titrimetric	8.9	5.1	5.7	mg/L
cyanide, free	<10	<10	12	ug/L
cyanide, total	<10	24	112	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	21	62	26	mg/L
sulfate, turbidimetric	22	25	46	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWREP-9	MW-8S	MW-24S
Sample Number:	870804-015	870805-001	870805-002
Date Received:	4-AUG-1987	5-AUG-1987	5-AUG-1987
Date Sampled:	2-AUG-1987	3-AUG-1987	3-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	21,500	21,700	21,000	ug/L
magnesium	3910	5480	6710	ug/L
potassium	5340	10,200	3860	ug/L
sodium	29,600	53,900	3420	ug/L
sodium (total)	31,100	57,200	3930	ug/L
bicarbonate alkalinity	90	60	82	mg/L
carbonate alkalinity	10	8.0	<2.0	mg/L
chloride, titrimetric	12	5.6	2.2	mg/L
cyanide, free	12	136	<10	ug/L
cyanide, total	89	7070	<10	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	29	136	11	mg/L
sulfate, turbidimetric	24	103	10	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-24S-FB	MWREP-5	MW-9S
Sample Number:	870805-003	870805-004	870805-005
Date Received:	5-AUG-1987	5-AUG-1987	5-AUG-1987
Date Sampled:	3-AUG-1987	4-AUG-1987	4-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	19,300	27,800	12,600	ug/L
magnesium	<500	9490	4290	ug/L
potassium	<1000	9820	7580	ug/L
sodium	<1000	173,000	88,300	ug/L
sodium (total)	<1000	159,000	82,200	ug/L
bicarbonate alkalinity	<2.0	268	190	mg/L
carbonate alkalinity	<2.0	12	<2.0	mg/L
chloride, titrimetric	<1.4	8.2	4.1	mg/L
cyanide, free	<10	105	60	ug/L
cyanide, total	<10	13,000	16,700	ug/L
fluoride by IC	<1.6	14	1.9	mg/L
fluoride by ISE	<1.0	12	1.9	mg/L
sulfate by IC	<2.0	121	56	mg/L
sulfate, turbidimetric	<5.0	101	41	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWR-9A	MW-15S	MW-27S
Sample Number:	870805-006	870805-007	870805-008
Date Received:	5-AUG-1987	5-AUG-1987	5-AUG-1987
Date Sampled:	4-AUG-1987	3-AUG-1987	3-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	27,300	8220	29,200	ug/L
magnesium	9610	1630	5730	ug/L
potassium	10,600	8080	10,700	ug/L
sodium	171,000	60,800	16,700	ug/L
sodium (total)	167,000	59,700	15,700	ug/L
bicarbonate alkalinity	314	26	112	mg/L
carbonate alkalinity	12	52	<2.0	mg/L
chloride, titrimetric	9.6	3.1	4.1	mg/L
cyanide, free	132	95	77	ug/L
cyanide, total	12,600	312	795	ug/L
fluoride by IC	11	4.9	<1.6	mg/L
fluoride by ISE	10	4.7	<1.0	mg/L
sulfate by IC	106	90	29	mg/L
sulfate, turbidimetric	100	74	32	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-2S	MW-2S-FB	MWR-7A
Sample Number:	870806-019	870806-020	870806-021
Date Received:	6-AUG-1987	6-AUG-1987	6-AUG-1987
Date Sampled:	4-AUG-1987	4-AUG-1987	5-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	15,900	3290	35,300	ug/L
magnesium	5930	<500	8430	ug/L
potassium	4140	<1000	7420	ug/L
sodium	10,700	<1000	29,400	ug/L
sodium (total)	10,500	<1000	29,000	ug/L
bicarbonate alkalinity	73	2.0	118	mg/L
carbonate alkalinity	4.0	<1.0	<1.0	mg/L
chloride, titrimetric	4.4	1.2	4.1	mg/L
cyanide, free	<10	<10	99	ug/L
cyanide, total	<10	<10	803	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	13	<2.0	25	mg/L
sulfate, turbidimetric	33	<5.0	28	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-21S	MW-20A	MW-20A-FB
Sample Number:	870807-001	870807-002	870807-003
Date Received:	7-AUG-1987	7-AUG-1987	7-AUG-1987
Date Sampled:	5-AUG-1987	5-AUG-1987	5-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	212,000	21,400	<500	ug/L
magnesium	89,800	10,000	<500	ug/L
potassium	14,700	8390	<1000	ug/L
sodium	96,700	36,900	<1000	ug/L
sodium (total)	90,500	38,400	<1000	ug/L
bicarbonate alkalinity	166	148	4.0	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	38	6.5	0.29	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	14	<10	<10	ug/L
fluoride by IC	7.0	<1.6	<1.6	mg/L
fluoride by ISE	5.5	<1.0	<1.0	mg/L
sulfate by IC	816	26	<2.0	mg/L
sulfate, turbidimetric	871	27	<5.0	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	TRIP BLANK#3	MW-21S-FB	MW-10A
Sample Number:	870807-004	870810-018	870810-019
Date Received:	7-AUG-1987	10-AUG-1987	10-AUG-1987
Date Sampled:	12-JUN-1987	5-AUG-1987	6-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	<500	<500	37,200	ug/L
magnesium	<500	<500	11,600	ug/L
potassium	<1000	<1000	10,900	ug/L
sodium	<1000	<1000	26,700	ug/L
sodium (total)	<1000	<1000	26,800	ug/L
bicarbonate alkalinity	2.0	2.0	112	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	0.29	0.29	47	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	<10	<10	20	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	<2.0	<2.0	22	mg/L
sulfate, turbidimetric	<5.0	<5.0	21	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	RECWELL	MW-5A	MW-28S
Sample Number:	870810-020	870810-021	870810-022
Date Received:	10-AUG-1987	10-AUG-1987	10-AUG-1987
Date Sampled:	6-AUG-1987	7-AUG-1987	7-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	21,500	35,300	12,900	ug/L
magnesium	9620	13,000	22,000	ug/L
potassium	6570	8260	9710	ug/L
sodium	38,500	17,100	78,200	ug/L
sodium (total)	40,000	17,100	82,600	ug/L
bicarbonate alkalinity	154	118	460	mg/L
carbonate alkalinity	<1.0	<1.0	32	mg/L
chloride, titrimetric	4.7	14	15	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	10	41	<10	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	18	47	31	mg/L
sulfate, turbidimetric	33	59	123	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW REP-10	MW-3S-FB	MW REP-2
Sample Number:	870811-001	870811-002	870811-003
Date Received:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Date Sampled:	8-AUG-1987	9-AUG-1987	9-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	50,700	<500	30,300	ug/L
magnesium	15,600	<500	13,200	ug/L
potassium	5970	<1000	8000	ug/L
sodium	9080	<1000	31,900	ug/L
sodium (total)	12,200	<1000	29,500	ug/L
bicarbonate alkalinity	<1.0	2.0	132	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	24	0.88	5.0	mg/L
cyanide, free	<10	<10	11	ug/L
cyanide, total	<10	<10	43	ug/L
fluoride by IC	3.4	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	23	<2.0	52	mg/L
sulfate, turbidimetric	9.9	<5.0	53	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-3S	MW-5S	MWR-4A
Sample Number:	870811-004	870811-005	870811-006
Date Received:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Date Sampled:	9-AUG-1987	9-AUG-1987	9-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	15,000	26,800	29,500	ug/L
magnesium	4300	34,200	13,300	ug/L
potassium	6650	6910	7820	ug/L
sodium	30,900	1.37 E+6	31,200	ug/L
sodium (total)	28,300	1.27 E+6	29,100	ug/L
bicarbonate alkalinity	98	2170	127	mg/L
carbonate alkalinity	<1.0	64	<1.0	mg/L
chloride, titrimetric	5.0	61	5.0	mg/L
cyanide, free	<10	215	<10	ug/L
cyanide, total	<10	34,100	213	ug/L
fluoride by IC	<1.6	75	<1.6	mg/L
fluoride by ISE	<1.0	57	<1.0	mg/L
sulfate by IC	15	590	70	mg/L
sulfate, turbidimetric	<5.0	680	64	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-4A-FB	MW-11D	MW-18S
Sample Number:	870811-007	870811-008	870811-009
Date Received:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Date Sampled:	9-AUG-1987	8-AUG-1987	8-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *		** Results **		Units
calcium	<500	20,400	350,000	ug/L
magnesium	<500	9690	118,000	ug/L
potassium	<1000	4830	19,400	ug/L
sodium	<1000	18,200	421,000	ug/L
sodium (total)	<1000	16,400	374,000	ug/L
bicarbonate alkalinity	3.0	97	146	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	0.29	6.5	55	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	<10	<10	50	ug/L
fluoride by IC	<1.6	<1.6	8.2	mg/L
fluoride by ISE	<1.0	<1.0	7.1	mg/L
sulfate by IC	<2.0	21	1990	mg/L
sulfate, turbidimetric	<5.0	22	1810	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWR-3A	MW-25S	MW-29S
Sample Number:	870811-010	870811-011	870811-012
Date Received:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Date Sampled:	9-AUG-1987	8-AUG-1987	8-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	26,400	23,900	296,000	ug/L
magnesium	9740	6890	206,000	ug/L
potassium	8620	5010	40,100	ug/L
sodium	25,100	8680	716,000	ug/L
sodium (total)	23,000	11,300	658,000	ug/L
bicarbonate alkalinity	111	99	600	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	13	9.1	38	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	16	<10	<10	ug/L
fluoride by IC	<1.6	<1.6	9.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	43	25	2490	mg/L
sulfate, turbidimetric	38	33	3020	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW REP-6	PW-3	PW-4
Sample Number:	870811-013	870812-023	870812-024
Date Received:	11-AUG-1987	12-AUG-1987	12-AUG-1987
Date Sampled:	8-AUG-1987	11-AUG-1987	11-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	18,500	21,500	15,900	ug/L
magnesium	9270	11,000	8090	ug/L
potassium	5130	8070	6030	ug/L
sodium	17,400	43,100	26,100	ug/L
sodium (total)	16,400	38,900	23,800	ug/L
bicarbonate alkalinity	114	160	108	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	9.7	5.2	3.5	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	<10	<10	<10	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	22	26	22	mg/L
sulfate, turbidimetric	22	20	16	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWREP-11	PW-4-FB	MW-26A
Sample Number:	870812-025	870812-026	870812-027
Date Received:	12-AUG-1987	12-AUG-1987	12-AUG-1987
Date Sampled:	11-AUG-1987	11-AUG-1987	10-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	21,500	<500	9250	ug/L
magnesium	11,100	<500	3680	ug/L
potassium	8080	<1000	5730	ug/L
sodium	42,600	<1000	73,700	ug/L
sodium (total)	38,400	<1000	61,200	ug/L
bicarbonate alkalinity	178	2.0	97	mg/L
carbonate alkalinity	<1.0	<1.0	34	mg/L
chloride, titrimetric	6.2	0.29	15	mg/L
cyanide, free	<10	<10	25	ug/L
cyanide, total	<10	<10	312	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	27	<2.0	52	mg/L
sulfate, turbidimetric	38	<5.0	75	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-27A	MW-16A-FB	MWREP-14
Sample Number:	870812-028	870812-029	870812-030
Date Received:	12-AUG-1987	12-AUG-1987	12-AUG-1987
Date Sampled:	10-AUG-1987	11-AUG-1987	11-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *		** Results **		Units
calcium	20,400	<500	9040	ug/L
magnesium	8540	<500	2140	ug/L
potassium	7480	<1000	6200	ug/L
sodium	33,300	<1000	46,400	ug/L
sodium (total)	28,100	<1000	42,200	ug/L
bicarbonate alkalinity	136	1.0	117	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	3.8	0.29	3.2	mg/L
cyanide, free	16	<10	11	ug/L
cyanide, total	200	<10	42	ug/L
fluoride by IC	2.0	<1.6	1.7	mg/L
fluoride by ISE	1.0	<1.0	<1.0	mg/L
sulfate by IC	30	<2.0	18	mg/L
sulfate, turbidimetric	29	<5.0	22	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	PW-1	MW-16A	MW-16D
Sample Number:	870812-031	870812-032	870812-033
Date Received:	12-AUG-1987	12-AUG-1987	12-AUG-1987
Date Sampled:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	21,900	9270	17,700	ug/L
magnesium	11,500	2100	9340	ug/L
potassium	7080	6610	5350	ug/L
sodium	32,900	49,200	20,600	ug/L
sodium (total)	29,300	41,200	17,900	ug/L
bicarbonate alkalinity	141	106	106	mg/L
carbonate alkalinity	<1.0	12	<1.0	mg/L
chloride, titrimetric	2.9	3.2	2.6	mg/L
cyanide, free	<10	12	<10	ug/L
cyanide, total	<10	40	<10	ug/L
fluoride by IC	<1.6	1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	31	18	20	mg/L
sulfate, turbidimetric	29	25	21	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	AS-FB	MWREP-12	MW-15A
Sample Number:	870813-007	870813-008	870813-009
Date Received:	13-AUG-1987	13-AUG-1987	13-AUG-1987
Date Sampled:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *		** Results **		Units
calcium	<500	49,200	24,600	ug/L
magnesium	<500	20,400	8170	ug/L
potassium	<1000	5820	9470	ug/L
sodium	<1000	13,200	34,900	ug/L
sodium (total)	<1000	14,300	37,000	ug/L
bicarbonate alkalinity	1.0	160	124	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	<0.29	5.3	8.8	mg/L
cyanide, free	<10	35	52	ug/L
cyanide, total	<10	1190	270	ug/L
fluoride by IC	<1.6	1.8	1.8	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	<2.0	49	43	mg/L
sulfate, turbidimetric	<5.0	47	44	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-15B	ANIMALSHELTR	ROCKLINE
Sample Number:	870813-010	870813-011	870813-012
Date Received:	13-AUG-1987	13-AUG-1987	13-AUG-1987
Date Sampled:	11-AUG-1987	11-AUG-1987	11-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	45,300	22,600	75,600	ug/L
magnesium	23,400	9110	32,100	ug/L
potassium	8600	7310	8670	ug/L
sodium	22,200	5290	38,400	ug/L
sodium (total)	23,800	6230	4160	ug/L
bicarbonate alkalinity	166	90	270	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	8.5	2.3	6.7	mg/L
cyanide, free	95	<10	23	ug/L
cyanide, total	802	23	336	ug/L
fluoride by IC	<1.6	<1.6	3.0	mg/L
fluoride by ISE	<1.0	<1.0	2.2	mg/L
sulfate by IC	80	16	142	mg/L
sulfate, turbidimetric	88	15	105	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MT.FIRLUMBER	KLINDT	MW-24A
Sample Number:	870813-013	870813-014	870817-001
Date Received:	13-AUG-1987	13-AUG-1987	14-AUG-1987
Date Sampled:	11-AUG-1987	11-AUG-1987	12-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	96,000	49,100	8710	ug/L
magnesium	54,300	20,400	3560	ug/L
potassium	8260	5990	6420	ug/L
sodium	18,800	12,800	40,300	ug/L
sodium (total)	20,500	14,000	44,700	ug/L
bicarbonate alkalinity	344	152	124	mg/L
carbonate alkalinity	<1.0	<1.0	4.0	mg/L
chloride, titrimetric	8.5	5.5	2.6	mg/L
cyanide, free	<10	37	<10	ug/L
cyanide, total	<10	177	<10	ug/L
fluoride by IC	<1.6	1.7	2.0	mg/L
fluoride by ISE	<1.0	<1.0	1.0	mg/L
sulfate by IC	165	51	7.7	mg/L
sulfate, turbidimetric	125	55	23	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-6AA	MW-6AA-FB	CHENOWITH #1
Sample Number:	870817-002	870817-003	870817-004
Date Received:	14-AUG-1987	14-AUG-1987	14-AUG-1987
Date Sampled:	12-AUG-1987	12-AUG-1987	13-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	15,900	<500	31,800	ug/L
magnesium	4990	<500	14,500	ug/L
potassium	6980	<1000	8570	ug/L
sodium	31,600	<1000	44,400	ug/L
sodium (total)	34,900	<1000	47,400	ug/L
bicarbonate alkalinity	114	1.0	190	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	2.3	<0.29	10	mg/L
cyanide, free	62	<10	<10	ug/L
cyanide, total	557	<10	<10	ug/L
fluoride by IC	1.6	<1.6	1.8	mg/L
fluoride by ISE	1.0	<1.0	<1.0	mg/L
sulfate by IC	24	<2.0	34	mg/L
sulfate, turbidimetric	22	<5.0	40	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	CHENOWITH #3	MWR-3B	MW-4B
Sample Number:	870817-005	870817-006	870817-007
Date Received:	14-AUG-1987	17-AUG-1987	17-AUG-1987
Date Sampled:	13-AUG-1987	13-AUG-1987	13-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	23,700	19,500	30,400	ug/L
magnesium	11,600	7690	13,800	ug/L
potassium	7930	7630	7960	ug/L
sodium	40,900	29,700	31,400	ug/L
sodium (total)	44,800	31,300	33,900	ug/L
bicarbonate alkalinity	168	123	149	mg/L
carbonate alkalinity	<1.0	<1.0	<1.0	mg/L
chloride, titrimetric	6.7	6.7	7.9	mg/L
cyanide, free	<10	<10	<10	ug/L
cyanide, total	<10	24	<10	ug/L
fluoride by IC	1.7	<1.6	1.8	mg/L
fluoride by ISE	1.0	<1.0	<1.0	mg/L
sulfate by IC	30	23	48	mg/L
sulfate, turbidimetric	30	22	54	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWREP-1	MWR-7B	MW-18B
Sample Number:	870818-003	870818-004	870818-005
Date Received:	18-AUG-1987	18-AUG-1987	18-AUG-1987
Date Sampled:	16-AUG-1987	16-AUG-1987	17-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	27,300	50,700	5860	ug/L
magnesium	7330	25,300	26,800	ug/L
potassium	9970	8780	12,100	ug/L
sodium	47,900	26,400	64,100	ug/L
sodium (total)	49,600	27,700	67,000	ug/L
bicarbonate alkalinity	90	188	169	mg/L
carbonate alkalinity	20	<0.5	<0.5	mg/L
chloride, titrimetric	7.9	8.2	14	mg/L
cyanide, free	32	35	<10	ug/L
cyanide, total	800	953	<10	ug/L
fluoride by IC	1.9	1.6	2.1	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	88	85	207	mg/L
sulfate, turbidimetric	86	99	271	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-18B-FB	MWR-1A	MWR-2B
Sample Number:	870818-006	870818-007	870818-008
Date Received:	18-AUG-1987	18-AUG-1987	18-AUG-1987
Date Sampled:	17-AUG-1987	16-AUG-1987	16-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	<500	30,500	27,700	ug/L
magnesium	<500	12,700	7380	ug/L
potassium	<1000	9320	9370	ug/L
sodium	<1000	56,300	51,700	ug/L
sodium (total)	<1000	56,400	48,300	ug/L
bicarbonate alkalinity	1.0	211	88	mg/L
carbonate alkalinity	<0.5	<0.5	20	mg/L
chloride, titrimetric	0.29	16	8.5	mg/L
cyanide, free	<10	<10	34	ug/L
cyanide, total	<10	<10	1180	ug/L
fluoride by IC	<1.6	<1.6	1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	<2.0	29	81	mg/L
sulfate, turbidimetric	<5.0	36	100	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MWR-2A	MWR-9B	MWR-1B
Sample Number:	870818-009	870818-010	870820-001
Date Received:	18-AUG-1987	18-AUG-1987	20-AUG-1987
Date Sampled:	15-AUG-1987	15-AUG-1987	17-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	21,700	16,900	14,200	ug/L
magnesium	8510	8690	1880	ug/L
potassium	7580	8580	7970	ug/L
sodium	34,000	204,000	43,900	ug/L
sodium (total)	31,700	195,000	41,100	ug/L
bicarbonate alkalinity	106	300	91	mg/L
carbonate alkalinity	<0.5	34	30	mg/L
chloride, titrimetric	4.4	18	9.7	mg/L
cyanide, free	38	57	<10	ug/L
cyanide, total	608	10,000	<10	ug/L
fluoride by IC	<1.6	26	<1.6	mg/L
fluoride by ISE	<1.0	20	<1.0	mg/L
sulfate by IC	50	81	17	mg/L
sulfate, turbidimetric	91	92	17	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-26B	TRIP BLANK#1	RESIDNCEWELL
Sample Number:	870825-001	870825-002	870825-003
Date Received:	24-AUG-1987	24-AUG-1987	24-AUG-1987
Date Sampled:	20-AUG-1987	12-JUN-1987	19-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	46,000	<500	118,000	ug/L
magnesium	23,000	<500	51,100	ug/L
potassium	9130	<1000	10,900	ug/L
sodium	35,400	<1000	92,000	ug/L
sodium (total)	32,500	<1000	95,100	ug/L
bicarbonate alkalinity	190	1.5	200	mg/L
carbonate alkalinity	<2.0	<2.0	<2.0	mg/L
chloride, titrimetric	10	0.29	25	mg/L
cyanide, free	47	<10	<10	ug/L
cyanide, total	1280	<10	55	ug/L
fluoride by IC	<1.6	<1.6	8.6	mg/L
fluoride by ISE	<1.0	<1.0	6.6	mg/L
sulfate by IC	69	<2.0	449	mg/L
sulfate, turbidimetric	83	<5.0	429	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-16B	MW-32S	MWREP-16
Sample Number:	870825-008	870825-009	870825-010
Date Received:	25-AUG-1987	25-AUG-1987	25-AUG-1987
Date Sampled:	23-AUG-1987	24-AUG-1987	24-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	24,200	37,800	39,000	ug/L
magnesium	12,100	14,400	14,500	ug/L
potassium	6520	10,000	9840	ug/L
sodium	26,400	24,900	25,500	ug/L
sodium (total)	25,100	24,500	25,000	ug/L
bicarbonate alkalinity	138	170	172	mg/L
carbonate alkalinity	<2.0	4.0	2.0	mg/L
chloride, titrimetric	13	6.1	4.7	mg/L
cyanide, free	15	52	65	ug/L
cyanide, total	260	1020	1060	ug/L
fluoride by IC	1.9	3.2	3.8	mg/L
fluoride by ISE	1.4	2.5	2.6	mg/L
sulfate by IC	20	30	29	mg/L
sulfate, turbidimetric	21	45	41	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-30S	CCSWG-2	MW-33A
Sample Number:	870827-001	870827-002	870827-003
Date Received:	27-AUG-1987	27-AUG-1987	27-AUG-1987
Date Sampled:	24-AUG-1987	24-AUG-1987	24-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	130,000	20,100	31,300	ug/L
magnesium	47,200	6010	13,200	ug/L
potassium	16,700	1290	8680	ug/L
sodium	89,600	6220	45,400	ug/L
sodium (total)	84,800	6000	43,200	ug/L
bicarbonate alkalinity	180	52	144	mg/L
carbonate alkalinity	<2.0	<2.0	<2.0	mg/L
chloride	19	2.3	8.8	mg/L
cyanide, free	<10	<10	85	ug/L
cyanide, total	<10	<10	1500	ug/L
fluoride by IC	2.9	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	393	8.8	56	mg/L
sulfate, turbidimetric	924	9.0	71	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-33B	MW-34B	CRSWG-1
Sample Number:	870827-004	870827-005	870827-006
Date Received:	27-AUG-1987	27-AUG-1987	27-AUG-1987
Date Sampled:	24-AUG-1987	25-AUG-1987	25-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds*	** Results **			Units
calcium	108,000	17,500	17,800	ug/L
magnesium	44,400	7660	4890	ug/L
potassium	11,900	7080	<1000	ug/L
sodium	21,500	38,000	5280	ug/L
sodium (total)	21,700	37,200	5230	ug/L
bicarbonate alkalinity	344	234	63	mg/L
carbonate alkalinity	<2.0	2.0	<2.0	mg/L
chloride	17	5.6	5.0	mg/L
cyanide, free	100	<10	<10	ug/L
cyanide, total	955	13	<10	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	115	10	8.2	mg/L
sulfate, turbidimetric	145	12	11	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	MW-27B	MW-27B-FB	MW-34A
Sample Number:	870831-001	870831-002	870831-003
Date Received:	31-AUG-1987	31-AUG-1987	31-AUG-1987
Date Sampled:	26-AUG-1987	26-AUG-1987	27-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	22,100	<500	16,800	ug/L
magnesium	8130	<500	12,600	ug/L
potassium	7820	<1000	4950	ug/L
sodium	27,900	<1000	62,500	ug/L
sodium (total)	27,000	<1000	61,400	ug/L
bicarbonate alkalinity	45	1.0	31	mg/L
carbonate alkalinity	<2.0	<2.0	54	mg/L
chloride	7.9	0.29	7.3	mg/L
cyanide, free	33	<10	<10	ug/L
cyanide, total	716	<10	<10	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	<1.0	<1.0	<1.0	mg/L
sulfate by IC	26	<2.0	17	mg/L
sulfate, turbidimetric	34	<5.0	27	mg

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.:	8B PUMP TEST	MW-31S	8BPMPTST MID
Sample Number:	870831-004	870831-026	870901-025
Date Received:	31-AUG-1987	31-AUG-1987	1-SEP-1987
Date Sampled:	27-AUG-1987	27-AUG-1987	29-AUG-1987
Matrix:	WATER	WATER	WATER

Compounds *	** Results **			Units
calcium	33,000	42,000	32,200	ug/L
magnesium	15,000	17,400	16,300	ug/L
potassium	7690	7120	6660	ug/L
sodium	29,800	62,000	19,000	ug/L
sodium (total)	28,500	58,500	18,500	ug/L
bicarbonate alkalinity	56	58	54	mg/L
carbonate alkalinity	<2.0	<2.0	<2.0	mg/L
chloride	7.3	11	6.1	mg/L
cyanide, free	57	<10	26	ug/L
cyanide, total	608	41	402	ug/L
fluoride by IC	<1.6	<1.6	<1.6	mg/L
fluoride by ISE	1.0	1.0	<1.0	mg/L
sulfate by IC	54	140	40	mg/L
sulfate, turbidimetric	60	153	41	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results Metals/Non-Metals Analysis

Cust Samp No.: 8BPMPTST END
Sample Number: 870901-026
Date Received: 1-SEP-1987
Date Sampled: 30-AUG-1987
Matrix: WATER

Compounds *	** Results **	Units
calcium	30,900	ug/L
magnesium	15,900	ug/L
potassium	6390	ug/L
sodium	18,700	ug/L
sodium (total)	18,900	ug/L
bicarbonate alkalinity	52	mg/L
carbonate alkalinity	<2.0	mg/L
chloride	5.6	mg/L
cyanide, free	38	ug/L
cyanide, total	457	ug/L
fluoride by IC	<1.6	mg/L
fluoride by ISE	<1.0	mg/L
sulfate by IC	39	mg/L
sulfate, turbidimetric	38	mg/L

*Metals (calcium, magnesium, potassium and sodium) reported
as dissolved except where noted.

Versar Inc., ESM Operations
Analytical Laboratory
Results of Non-Metals Analysis

Cust Samp No.: HOLD TANK
Sample Number: 870902-001
Date Received: 2-SEP-1987
Date Sampled: 1-SEP-1987
Matrix: WATER

Compounds	** Results **	Units
cyanide, free	79	ug/L

SECTION III

SEMIVOLATILE ANALYSES

ORGANICS ANALYSIS DATA SHEETS
Versar Inc., ESM Operations

Page 1

Semivolatile Compounds

CLIENT SAMPLE ID:	RESIDENCE	MWREP-15	MW-15S
	WELL		
LAB SAMPLE ID:	3668	3669	3676
SAMPLE DATE:	08/19/87	08/19/87	08/20/87
EXTRACTION DATE:	08/25/87	08/25/87	08/25/87
ANALYSIS DATE:	08/27/87	08/27/87	08/27/87
FILE NAME:	BNA3668	BNA3669	BNA3676
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L

COMPOUNDS

Acenaphthalene	< 10	< 10	< 10
Acenaphthene	< 10	< 10	< 10
Anthracene	< 10	< 10	< 10
Benzidine	< 80	< 80	< 80
Benzo(a)Anthracene	< 10	< 10	< 10
Benzo(a)Pyrene	< 10	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10	< 10
Benzo(g, h, i)Perylene	< 10	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10	< 10
Butylbenzylphthalate	< 10	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10	< 10
2-Chloronaphthalene	< 10	< 10	< 10
2-Chlorophenol	< 10	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10	< 10
Chrysene	< 10	< 10	< 10
Di-n-Butylphthalate	< 10	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10	< 10
Dibenz(a, h)Anthracene	< 10	< 10	< 10
1, 2-Dichlorobenzene	< 10	< 10	< 10
1, 4-Dichlorobenzene	< 10	< 10	< 10
1, 3-Dichlorobenzene	< 10	< 10	< 10
3, 3'-Dichlorobenzidine	< 20	< 20	< 20
2, 4-Dichlorophenol	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10
Dimethyl Phthalate	< 10	< 10	< 10
2, 4-Dimethylphenol	< 10	< 10	< 10
4, 6-Dinitro-2-Methylphenol	< 50	< 50	< 50
2, 4-Dinitrophenol	< 50	< 50	< 50
2, 4-Dinitrotoluene	< 10	< 10	< 10
2, 6-Dinitrotoluene	< 10	< 10	< 10
1, 2-Diphenylhydrazine	< 10	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10	< 10
Fluoranthene	< 10	< 10	< 10

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ORGANICS ANALYSIS DATA SHEETS
Versar Inc., ESM Operations

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Semivolatile Compounds

CLIENT SAMPLE ID:	RESIDENCE	MWREP-15	MW-155
	WELL		
LAB SAMPLE ID:	3668	3669	3676
SAMPLE DATE:	08/19/87	08/19/87	08/20/87
EXTRACTION DATE:	08/25/87	08/25/87	08/25/87
ANALYSIS DATE:	08/27/87	08/27/87	08/27/87
FILE NAME:	BNA3668	BNA3669	BNA3676
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L

COMPOUNDS

Fluorene	< 10	< 10	< 10
Hexachlorobenzene	< 10	< 10	< 10
Hexachlorobutadiene	< 10	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10	< 10
Hexachloroethane	< 10	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10	< 10
Isophorone	< 10	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10
Nitrobenzene	< 10	< 10	< 10
4-Nitrophenol	< 50	< 50	< 50
2-Nitrophenol	< 10	< 10	< 10
Pentachlorophenol	< 50	< 50	< 50
Phenanthrene	< 10	< 10	< 10
Phenol	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10	< 10

Semivolatile Compounds

CLIENT SAMPLE ID:	REPLICATE	LEACHATE FILTERED	LEACHATE UNFILTERED
LAB SAMPLE ID:	3716	3717AE	3717BE
SAMPLE DATE:	08/27/87	08/27/87	09/01/87
EXTRACTION DATE:	09/01/87	09/01/87	09/01/87
ANALYSIS DATE:	09/03/87	09/03/87	09/03/87
FILE NAME:	BNA3716	BNA3717AE	BNA3717BE
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L

COMPOUNDS

Acenaphthalene	< 10	< 10	< 10
Acenaphthene	< 10	< 10	< 10
Anthracene	< 10	< 10	< 10
Benzidine	< 80	< 80	< 80
Benzo(a)Anthracene	< 10	< 10	< 10
Benzo(a)Pyrene	< 10	< 10	< 10
Benzo(b+k)fluoranthenes	< 10	< 10	< 10
Benzo(g,h,i)Perylene	< 10	< 10	< 10
4-Bromophenyl-phenylether	< 10	< 10	< 10
Butylbenzylphthalate	< 10	< 10	< 10
4-Chloro-3-Methylphenol	< 10	< 10	< 10
bis(2-Chloroethoxy)Methane	< 10	< 10	< 10
bis(2-Chloroethyl)Ether	< 10	< 10	< 10
bis(2-Chloroisopropyl)Ether	< 10	< 10	< 10
2-Chloronaphthalene	< 10	< 10	< 10
2-Chlorophenol	< 10	< 10	< 10
4-Chlorophenyl-phenylether	< 10	< 10	< 10
Chrysene	< 10	< 10	< 10
Di-n-Butylphthalate	< 10	< 10	< 10
Di-n-Octyl Phthalate	< 10	< 10	< 10
Dibenz(a,h)Anthracene	< 10	< 10	< 10
1,2-Dichlorobenzene	< 10	< 10	< 10
1,4-Dichlorobenzene	< 10	< 10	< 10
1,3-Dichlorobenzene	< 10	< 10	< 10
3,3'-Dichlorobenzidine	< 20	< 20	< 20
2,4-Dichlorophenol	< 10	< 10	< 10
Diethylphthalate	< 10	< 10	< 10
Dimethyl Phthalate	< 10	< 10	< 10
2,4-Dimethylphenol	< 10	< 10	< 10
4,6-Dinitro-2-Methylphenol	< 50	< 50	< 50
2,4-Dinitrophenol	< 50	< 50	< 50
2,4-Dinitrotoluene	< 10	< 10	< 10
2,6-Dinitrotoluene	< 10	< 10	< 10
1,2-Diphenylhydrazine	< 10	< 10	< 10
bis(2-Ethylhexyl)Phthalate	< 10	< 10	< 10
Fluoranthene	< 10	< 10	< 10

ORGANICS ANALYSIS DATA SHEETS
Versar Inc., ESM Operations

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Semivolatile Compounds

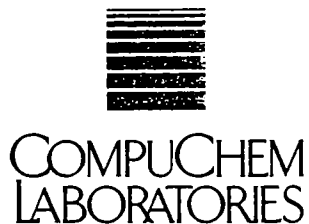
CLIENT SAMPLE ID:	REPLICATE	LEACHATE FILTERED	LEACHATE UNFILTERED
LAB SAMPLE ID:	3716	3717AE	3717BE
SAMPLE DATE:	08/27/87	08/27/87	09/01/87
EXTRACTION DATE:	09/01/87	09/01/87	09/01/87
ANALYSIS DATE:	09/03/87	09/03/87	09/03/87
FILE NAME:	BNA3716	BNA3717AE	BNA3717BE
INSTRUMENT ID:	MS-A	MS-A	MS-A
MATRIX:	WATER	WATER	WATER
UNITS:	UG/L	UG/L	UG/L

COMPOUNDS

Fluorene	< 10	< 10	< 10
Hexachlorobenzene	< 10	< 10	< 10
Hexachlorobutadiene	< 10	< 10	< 10
Hexachlorocyclopentadiene	< 10	< 10	< 10
Hexachloroethane	< 10	< 10	< 10
Indeno(1,2,3-cd)Pyrene	< 10	< 10	< 10
Isophorone	< 10	< 10	< 10
N-Nitroso-Di-n-Propylamine	< 10	< 10	< 10
N-Nitrosodimethylamine	< 5	< 5	< 5
N-Nitrosodiphenylamine	< 10	< 10	< 10
Naphthalene	< 10	< 10	< 10
Nitrobenzene	< 10	< 10	< 10
4-Nitrophenol	< 50	< 50	< 50
2-Nitrophenol	< 10	< 10	< 10
Pentachlorophenol	< 50	< 50	< 50
Phenanthrene	< 10	< 10	< 10
Phenol	< 10	< 10	< 10
Pyrene	< 10	< 10	< 10
1,2,4-Trichlorobenzene	< 10	< 10	< 10
2,4,6-Trichlorophenol	< 10	< 10	< 10

LABORATORY SPLIT DATA

ANALYSIS OF SOILS AND SURFACE WATER
AT MMRF, THE DALLES, OREGON
JUNE 1987
AND
ANALYSES OF GROUND WATER
AT MMRF, THE DALLES, OREGON
AUGUST 1987



Sample Data Report

For

The Dalles Project

From Geraghty & Miller

August 14, 1987

Issued by

Diana A. Scammell

Diana A. Scammell
Environmental Project Manager

C-354

A. SOIL AND SURFACE-WATER SAMPLES

JUNE 1987

Introduction

Enclosed are the data reports for the samples received on June 22, 1987, June 23, 1987, June 24, 1987, and June 26, 1987 by CompuChem Laboratories, Incorporated, from Geraghty and Miller for the Dalles Project. These samples were analyzed all or in part for volatiles, semivolatiles, total cyanide, "free" cyanide, sulfate, fluoride, arsenic, sodium, and E. P. Toxicity Metals.

This report package consists of a summary report containing quality control data tables and compound lists for the individual sample fractions. Expanded reports are included for all sample fractions analyzed by GC/MS. These expanded reports contain copies of the reconstructed ion chromatograms (RIC), quantitation reports, spectra, and library search comparison spectra GC/MS tuning reports, initial calibration reports and continuing calibration reports are assembled into separate sub-reports.

Initial calibration data is included in the expanded report for the E. P. Toxicity Metals, sodium, cyanide, sulfate and fluoride analyses. Duplicate results are provided for the cyanide, sulfate and fluoride analyses.

Detection limits and analyte values for the soil samples are calculated as a dry weight basis. The actual sample aliquot size and dilution factor (where applicable) are listed in the header of each semivolatile and volatile compound list.

A copy of the volatile instrument blank and the semivolatile method blank is included in both the summary and expanded reports. All blanks associated with the reported sample data meet all of CompuChem's acceptance criteria. A "B" footnote is employed to indicate compounds present in both the sample and in the associate blank.

Notes & Observations

The semivolatile sample spikes for sample PHASC-SPLIT exhibited good spike recovery except for pyrene and pentachlorophenol. According to the CLP protocol, outliers are allowed in the event that the majority of spike compounds pass criteria.

For the volatile analyses, an instrument blank was generated since the samples did not require compositing.

Sample LDAWGS was a brown-black opaque liquid. When the free cyanide analysis was performed there was a precipitate after the zinc acetate and acetate buffer were added and it was difficult to determine a pink color with the methyl red indicator since the sample was dark in color. When the total cyanide analysis was performed, the sample reacted violently to the addition of sulfuric acid. The fluoride analysis was analyzed outside of holding times on August 12, 1987.

Sample LRASC-SPLIT was a fine, reddish dirt containing various sizes of rocks.

Sample CWASG-SPLIT was a fine, gray dirt containing rocks of various sizes.

Sample OCWPSC-C was a fine, brown dirt containing rocks of various sizes.

Sample TRIP-BLANK was a clear water blank.

Master List of Sample ID/CC #'s

Sample I.D.	CompuChem #	Sampling Date	Receipt Date	Analysis Ordered	Matrix
1) OCWPSC-C	139210	6/26/87	6/29/87	Total Cyanide free cyanide sodium	Soil
2) CWASG-Split	139062	6/24/87	6/26/87	total & free cyanide sodium & flouride	Soil
3) LDAWGS	a. 139050	6/23/87	6/25/87	a. total & free cyanide flouride	Soil
	b. 139050			b. ABN 625 MOD CLP	
	c. 139054			c. 624 MOD CLP	
tripblank	d. 139059	6/16/87	6/25/87	d. 624 MOD CLP	Water
4) LRASC-Split	a. 138505	6/22/87	6/24/87	a. total & free cyanide Sulfate, flouride Sodium arsenic	Soil
	b. 138510			b. EP Toxicity metals	
5) Phasc-Split	138511	6/23/87	6/24/87	Method 625 BN	Soil

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METHOD REFERENCES
FOR
ADDITIONAL PARAMETERS

Parameter	Method Reference
1. Total Cyanide	EPA Method 335.2
2. Weak and Dissociable (Free) Cyanide	Standard Methods 16th Edition 412.H
3. Fluoride (water)	Standard Methods 16th Edition 413.B
4. Fluoride (soil)	Preparation Procedure as written by Versar followed by Standard Methods 16th Edition 413.B
5. Total Sodium	EPA Method 200.7
6. Total Arsenic	EPA Method 206.2
7. Sulfate Sample Pretest	EPA Method 370.1 (Silica)
8. Sulfate (Soil/Water)	EPA Method 375.4 Turbidometric
9. Extraction Procedure (E.P.) Toxicity Metals	Method 1310 (SW-846)

B. DATA

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October 13, 1987

MASTER LIST FOR GERAGHTY & MILLER

DALLES, OREGON PROJECT

SAMPLE ID	ANALYSIS	ORIGINAL (mg/kg)	DUPLICATE (mg/kg)	RPD
LRASC-Split CC# 138505 Soil	Arsenic	4.4		
	Sodium	11700		
	Total cyanide	6.9		
	Free cyanide	.85		
	Sulfate	593	669	12
	Flouride	2120	2150	1
OCWPSC-C CC# 139210 Soil	Sodium	14800		
	Total cyanide	16.0		
	Free cyanide	8.6		
CWASG-Split CC# 139602 Soil	Total cyanide	18.4	18.1	2
	Free cyanide	4.8	5.3	10
	Flouride	650		
	Sodium	5740		

E. P. TOXICITY METALS

COMPUCHEM I.D.
GERAGHTY & MILLER I.D.

138510
LRASC

ELEMENT	RESULT (UG/L)	INSTRUMENT DETECTION LIMIT (UG/L)
ARSENIC	58	3.7
BARIUM	112	1.0
CADMIUM	4.0 U	4.0
CHROMIUM	32	7.0
LEAD	50. U	50.
MERCURY	0.29	.20
SELENIUM	2.5 U	2.5
SILVER	7.0 U	7.0

U = INDICATES ELEMENT WAS ANALYZED FOR BUT NOT DETECTED.

ADDITIONAL INORGANIC PARAMETERS
(LIQUID)

CC #	G & M ID	TOTAL CYANIDE (MG/L)	FREE CYANIDE (MG/L)	FLUORIDE (MG/L)
139050	LDAWGS	33	5.9	7800

INSTRUMENT
DETECTION
LIMITS

0.01

0.01

0.01

* = ANALYSIS NOT REQUESTED

U = INDICATES ANALYTE WAS ANALYZED FOR BUT NOT DETECTED

DUPLICATE TOTAL CYANIDE DATA
FOR
SAMPLE CWASG-SPLIT

1.	ORIGINAL COMPUCHEM # 139062 (MG/KG)	DUPLICATE COMPUCHEM # 138508 (MG/KG)	RPD
	18.4	18.1	2

CALIBRATION DATA FOR TOTAL CYANIDES

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.3	7-9-87
	0.2	
	0.1	
	0.05	
	0.01	
CALIBRATION BLANK	BDL	7-9-87
PREPARATION BLANK	BDL	7-9-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	0.2	0.21	106	85 - 115	7-9-87
CONTINUING CALIBRATION VERIFICATION	0.2	0.201	100	85 - 115	7-9-87

DUPLICATE "FREE" CYANIDE DATA
FOR
SAMPLE CWASG-SPLIT

2.	ORIGINAL COMPUCHEM # 139062 (MG/KG)	DUPLICATE COMPUCHEM # 138508 (MG/KG)	RPD
	4.8	5.3	10

CALIBRATION DATA FOR "FREE" CYANIDES

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED			
	0.3	7-9-87			
	0.2				
	0.1				
	0.05				
	0.01				
CALIBRATION BLANK	BDL	7-9-87			
PREPARATION BLANK	BDL	7-9-87			
	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	0.2	0.197	99	85 - 115	7-9-87
CONTINUING CALIBRATION VERIFICATION	0.2	0.209	104	85 - 115	7-9-87

DUPLICATE SULFATE DATA
FOR
SAMPLE LRASC-SPLIT

5.	ORIGINAL COMPUCHEM # 138505-0 (MG/L)	DUPLICATE COMPUCHEM # 138505-0 (MG/L)	RPD
	593	669	12

CALIBRATION DATA FOR SULFATES

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.0	7-21-87
	10	
	25	
	35	
METHOD BLANK	BDL	7-21-87
PREPARATION BLANK	BDL	7-21-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
CONTINUING CALIBRATION VERIFICATION	20	21.99	110	90 - 110	7-21-87

DUPLICATE FLUORIDE DATA
FOR
SAMPLE LRASC-SPLIT

3.	ORIGINAL	DUPLICATE	
	COMPUCHEM # 138505-D	COMPUCHEM # 138505-D	RPD
	(MG/KG)	(MG/KG)	
	2120	2150	1

CALIBRATION DATA FOR FLUORIDES

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.0	7-14-87
	2.0	
	10.0	
METHOD BLANK	BDL	7-14-87
PREPARATION BLANK	BDL	7-14-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
CONTINUING CALIBRATION VERIFICATION	2.16	2.19	101	90 - 110	7-14-87

CALIBRATION DATA FOR FLUORIDES

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.0	8-12-87
	1.0	
	0.5	
	0.01	
METHOD BLANK	BDL	8-12-87
PREPARATION BLANK	BDL	8-12-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
CONTINUING CALIBRATION VERIFICATION	2.16	2.14	99	90 - 110	8-12-87

DUPLICATE DATA
FOR
E.P. TOXICITY METALS

ELEMENT	ORIGINAL #135281 (UG/L)	DUPLICATE #135277 (UG/L)	RPD	INSTRUMENT DETECTION LIMIT (UG/L)	DATE ANALYZED
ARSENIC	9.5	12	23	3.7	6/23/87
BARIUM	33	34	3	1.0	
CADMIUM	4 U	4 U		4.0	
CHROMIUM	7 U	7 U		7.0	
LEAD	19	21	10	5.0	
MERCURY	0.2 U	0.2 U		.20	
SELENIUM	2.5 U	2.5 U		2.5	
SILVER	7.0 U	7 U		7.0	

U = INDICATES ELEMENT WAS ANALYZED FOR BUT NOT DETECTED.

Acceptance range + or - 20 for RPD.

ELEMENT - ARSENIC

INSTRUMENT FLAME

STANDARDS	CONCENTRATION (UG/L)	DATE ANALYZED
	10.00	7-23-87
	30.00	
	45.00	
	70.00	
CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (UG/L)	ACTUAL CONCENTRATION (UG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	50	44	95	90-110	7-23-87
CONTINUING CALIBRATION	50	50.15	103	90-110	7-23-87

ELEMENT - SODIUM

INSTRUMENT FLAME

STANDARDS	CONCENTRATION (UG/L)	DATE ANALYZED
	05.00	7-22-87
	10.00	
	15.00	
	20.00	
	40.00	
CALIBRATION BLANK	BDL	7-22-87
METHOD BLANK	BDL	7-22-87

	TRUE VALUE (UG/L)	ACTUAL CONCENTRATION (UG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	10	10.6	106	90-110	7-22-87
CONTINUING CALIBRATION	10	10.75	108	90-110	7-22-87

ELEMENT - BARIUM

INSTRUMENT ICP

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.00	7-23-87
	10.00	

CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	1.00	1.01	101	90-110	7-23-87
CONTINUING CALIBRATION	1.00	1.00	100	90-110	7-23-87

ELEMENT - CADMIUM

INSTRUMENT ICP

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.00	7-23-87
	10.00	
CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	1.00	1.02	102	90-110	7-23-87
CONTINUING CALIBRATION	1.00	1.01	101	90-110	7-23-87

ELEMENT - CHROMIUM

INSTRUMENT ICP

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.00	7-23-87
	10.00	
CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	1.00	1.06	106	90-110	7-23-87
CONTINUING CALIBRATION	1.00	1.05	105	90-110	7-23-87

ELEMENT - LEAD

INSTRUMENT ICP

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.00	7-23-87
	10.00	

CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	1.00	.996	100	90-110	7-23-87
CONTINUING CALIBRATION	1.00	.968	97	90-110	7-23-87

ELEMENT - SELENIUM

INSTRUMENT FLAME

STANDARDS	CONCENTRATION (UG/L)	DATE ANALYZED
	5.00	7-23-87
	30.00	
	50.00	
	70.00	
CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (UG/L)	ACTUAL CONCENTRATION (UG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	50	48	96	90-110	7-23-87
CONTINUING CALIBRATION	10	10.68	107	90-110	7-23-87

ELEMENT - SILVER

INSTRUMENT ICP

STANDARDS	CONCENTRATION (MG/L)	DATE ANALYZED
	0.00	7-23-87
	10.00	

CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (MG/L)	ACTUAL CONCENTRATION (MG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	1.00	.996	100	90-110	7-23-87
CONTINUING CALIBRATION	1.00	.986	99	90-110	7-23-87

ELEMENT - MERCURY

INSTRUMENT A A (COLD VAPOR)

STANDARDS	CONCENTRATION (UG/L)	DATE ANALYZED
	1.00	7-23-87
	2.00	
	3.00	
	5.00	
	7.00	
CALIBRATION BLANK	BDL	7-23-87
METHOD BLANK	BDL	7-23-87

	TRUE VALUE (UG/L)	ACTUAL CONCENTRATION (UG/L)	PERCENT RECOVERY	ACCEPTANCE RANGE	DATE ANALYZED
INITIAL CALIBRATION VERIFICATION	3.0	3.28	103	80-120	7-23-87
CONTINUING CALIBRATION	3.0	3.09	97	80-120	7-23-87

COMPOUND LIST

VOLATILE ORGANICS
BY METHOD 8240GERAGHTY & MILLER
COMPUCHEM SAMPLE IDLDAWGS
139054

SAMPLE VOLUME

5.0 ML

SCAN	ANALYTES:	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
	BROMOCHLOROMETHANE	BDL	10
	CHLOROMETHANE	BDL	10
	BROMOMETHANE	BDL	10
	VINYL CHLORIDE	BDL	10
	CHLOROETHANE	BDL	10
	METHYLENE CHLORIDE	BDL	5
	ACETONE (2-PROPANONE)	BDL	10
	CARBON DISULFIDE	BDL	5
	1,1-DICHLOROETHYLENE	BDL	5
	1,1-DICHLOROETHANE	BDL	5
	TRANS-1,2-DICHLOROETHYLENE	BDL	5
	CHLOROFORM	BDL	5
	1,2-DICHLOROETHANE	BDL	5
	1,4-DIFLUOROBENZENE	BDL	5
	2-BUTANONE	BDL	10
	1,1,1-TRICHLOROETHANE	BDL	5
	CARBON TETRACHLORIDE	BDL	5
	VINYL ACETATE	BDL	10
	BROMODICHLOROMETHANE	BDL	5
	1,2-DICHLOROPROPANE	BDL	5
	TRANS-1,3-DICHLOROPROPENE	BDL	5
	TRICHLOROETHYLENE	BDL	5
	CHLORODIBROMOMETHANE	BDL	5
	1,1,2-TRICHLOROETHANE	BDL	5
	BENZENE	BDL	5
	CIS-1,3-DICHLOROPROPENE	BDL	5
	2-CHLOROETHYL VINYL ETHER	BDL	10
	BROMOFORM	BDL	5
	4-METHYL-2-PENTANONE	BDL	10
	2-HEXANONE	BDL	10
	TETRACHLOROETHENE	BDL	5
	1,1,2,2-TETRACHLOROETHANE	BDL	5
	TOLUENE	BDL	5
	CHLOROBENZENE	BDL	5
	ETHYLBENZENE	BDL	5
	STYRENE	BDL	5
	M-XYLENE	BDL	5
	O,P-XYLENE	BDL	5

COMPOUND LIST

-

VOLATILE ORGANICS
BY METHOD 8240GERAGHTY & MILLER
COMPUCHEM SAMPLE IDLDAWGS
139054

SAMPLE VOLUME

5.0 ML

SURROGATES:

% RECOVERY CONTROL RANGE

D4-1,2-DICHLOROETHANE
BROMOFLUOROBENZENE
DB-TOLUENE

103	76	-	114
100	86	-	115
94	88	-	110

BDL - BELOW DETECTION LIMIT

COMPOUND LIST

VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM SAMPLE ID

TRIP BLANK
CN039059C11

SAMPLE VOLUME

5.0 ML

SCAN	ANALYTES:	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
	BROMOCHLOROMETHANE	BDL	10
	CHLOROMETHANE	BDL	10
	BROMOMETHANE	BDL	10
	VINYL CHLORIDE	BDL	10
	CHLOROETHANE	BDL	10
	METHYLENE CHLORIDE	BDL	5
	ACETONE (2-PROPANONE)	BDL	10
	CARBON DISULFIDE	BDL	5
	1,1-DICHLOROETHYLENE	BDL	5
	1,1-DICHLOROETHANE	BDL	5
	TRANS-1,2-DICHLOROETHYLENE	BDL	5
	CHLOROFORM	BDL	5
	1,2-DICHLOROETHANE	BDL	5
	1,4-DIFLUOROBENZENE	BDL	5
	2-BUTANONE	BDL	10
	1,1,1-TRICHLOROETHANE	BDL	5
	CARBON TETRACHLORIDE	BDL	5
	VINYL ACETATE	BDL	10
	BROMODICHLOROMETHANE	BDL	5
	1,2-DICHLOROPROPANE	BDL	5
	TRANS-1,3-DICHLOROPROPENE	BDL	5
	TRICHLOROETHYLENE	BDL	5
	CHLORODIBROMOMETHANE	BDL	5
	1,1,2-TRICHLOROETHANE	BDL	5
	BENZENE	BDL	5
	CIS-1,3-DICHLOROPROPENE	BDL	5
	2-CHLOROETHYL VINYL ETHER	BDL	10
	BROMOFORM	BDL	5
	4-METHYL-2-PENTANONE	BDL	10
	2-HEXANONE	BDL	10
	TETRACHLOROETHENE	BDL	5
	1,1,2,2-TETRACHLOROETHANE	BDL	5
	TOLUENE	BDL	5
	CHLOROBENZENE	BDL	5
	ETHYLBENZENE	BDL	5
	STYRENE	BDL	5
	M-XYLENE	BDL	5
	O,P-XYLENE	BDL	5

COMPOUND LIST

- VOLATILE ORGANICS
BY METHOD 8240

COMPUCHEM SAMPLE ID

TRIP BLANK
CN039059C11

SAMPLE VOLUME

5.0 ML

SURROGATES:

% RECOVERY CONTROL RANGE

D4-1,2-DICHLOROETHANE
BROMOFLUOROBENZENE
D8-TOLUENE

94	76	-	114
100	86	-	115
99	88	-	110

BDL - BELOW DETECTION LIMIT

COMPOUND LIST

SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLSGERAGHTY & MILLER SAMPLE ID
COMPUCHEM SAMPLE IDLDAWGS
139040SAMPLE VOLUME
FINAL EXTRACT VOLUME
DILUTION FACTOR500 ML
0.5 ML
1.0

DATA REPORTED ON WET WEIGHT BASIS

SCAN	ANALYTES:	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
	2,4-DINITROPHENOL	BDL	100
	4-NITROPHENOL	BDL	100
	DIBENZOFURAN	BDL	20
	2,4-DINITROTOLUENE	BDL	20
	2,6-DINITROTOLUENE	BDL	20
	DIETHYL PHTHALATE	BDL	20
	4-CHLOROPHENYL PHENYL ETHER	BDL	20
	FLUORENE	BDL	20
	4-NITROANILINE	BDL	100
	4,6-DINITRO-2-METHYLPHENOL	BDL	100
	N-NITROSODIPHENYLAMINE	BDL	20
	4-BROMOPHENYL PHENYL ETHER	BDL	20
	HEXACHLOROBENZENE	BDL	20
	PENTACHLOROPHENOL	BDL	100
	PHENANTHRENE	BDL	20
951	ANTHRACENE	3.8 J	20
	DI-N-BUTYL PHTHALATE	BDL	20
1063	FLUORANTHENE	18 J	20
1086	PYRENE	14 J	20
	BUTYLBENZYL PHTHALATE	BDL	20
	3,3'-DICHLOROBENZIDINE	BDL	40
	BIS(2-ETHYLHEXYL)PHTHALATE	BDL	20
1208	BENZO(A)ANTHRACENE	8.4 J	20
1213	CHRYSENE	19 J	20
	DI-N-OCTYL PHTHALATE	BDL	20
1371	BENZO(B)FLUORANTHENE	18 J	20
1371	BENZO(K)FLUORANTHENE	18 J	20
1423	BENZO(A)PYRENE	9.2 J	20
	INDENO(1,2,3-C,D)PYRENE	BDL	20
	DIBENZO(A,H)ANTHRACENE	BDL	20
	BENZO(G,H,I)PERYLENE	BDL	20
	1,2,3,4-TETRACHLOROBENZENE	BDL	20

COMPOUND LIST

SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLSGERAGHTY & MILLER SAMPLE ID
COMPUCHEM SAMPLE IDLDAWGS
139040SAMPLE VOLUME
FINAL EXTRACT VOLUME
DILUTION FACTOR
DATA REPORTED ON WET WEIGHT BASIS500 ML
0.5 ML
1.0

SCAN	ANALYTES:	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
	PHENOL	BDL	20
	BIS(2-CHLOROETHYL)ETHER	BDL	20
	2-CHLOROPHENOL	BDL	20
	1,3-DICHLOROBENZENE	BDL	20
	1,4-DICHLOROBENZENE	BDL	20
	BENZYL ALCOHOL	BDL	20
	1,2-DICHLOROBENZENE	BDL	20
	2-METHYLPHENOL	BDL	20
	BIS(2-CHLOROISOPROPYL)ETHER	BDL	20
	4-METHYLPHENOL	BDL	20
	N-NITROSO-DI-N-PROPYLAMINE	BDL	20
	HEXACHLOROETHANE	BDL	20
	NITROBENZENE	BDL	20
	ISOPHORONE	BDL	20
	2-NITROPHENOL	BDL	20
	2,4-DIMETHYLPHENOL	BDL	20
604	BENZOIC ACID	28 J	100
	BIS(2-CHLOROETHOXY)METHANE	BDL	20
	2,4-DICHLOROPHENOL	BDL	20
	1,2,4-TRICHLOROBENZENE	BDL	20
	NAPHTHALENE	BDL	20
	4-CHLOROANILINE	BDL	20
	HEXACHLOROBUTADIENE	BDL	20
	P-CHLORO-M-CRESOL	BDL	20
	2-METHYLNAPHTHALENE	BDL	20
	HEXACHLOROCYCLOPENTADIENE	BDL	20
	2,4,6-TRICHLOROPHENOL	BDL	20
	2,4,5-TRICHLOROPHENOL	BDL	100
	2-CHLORONAPHTHALENE	BDL	20
	2-NITROANILINE	BDL	100
	DIMETHYL PHTHALATE	BDL	20
	ACENAPHTHYLENE	BDL	20
	3-NITROANILINE	BDL	100
	ACENAPHTHENE	BDL	20

COMPOUND LIST - SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLS

GERAGHTY & MILLER SAMPLE ID LDAWGS
COMPUCHEM SAMPLE ID 139040

SAMPLE VOLUME 500 ML
FINAL EXTRACT VOLUME 0.5 ML
DILUTION FACTOR 1.0
DATA REPORTED ON WET WEIGHT BASIS

SURROGATES:	% RECOVERY	CONTROL RANGE
2-FLUOROPHENOL	0	NOT FOUND
D5-PHENOL	0	NOT FOUND
D5-NITROBENZENE	78	35 - 114
2-FLUOROBIPHENYL	80	43 - 116
2,4,6-TRIBROMOPHENOL	2	10 - 123
D14-TERPHENYL	91	33 - 141
D10-PYRENE	77	33 - 128

BDL - BELOW DETECTION LIMIT.

J - ESTIMATED CONCENTRATION OF ANALYTE WHICH IS PRESENT
BUT AT A CONCENTRATION LESS THAN THE STATED DETECTION
LIMIT.

COMPOUND LIST

- SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLSGERAGHTY & MILLER SAMPLE ID
COMPUCHEM SAMPLE IDPHASC-SPLIT
138511SAMPLE WEIGHT
FINAL EXTRACT VOLUME
DILUTION FACTOR
DATA REPORTED ON DRY WEIGHT BASIS1.02 G
0.9 ML
5.0
1.01

SCAN	ANALYTES:	CONCENTRATION (UG/KG)	DETECTION LIMIT (UG/KG)
	PHENOL	BDL	50000
	BIS(2-CHLOROETHYL)ETHER	BDL	50000
	2-CHLOROPHENOL	BDL	50000
	1,3-DICHLOROBENZENE	BDL	50000
	1,4-DICHLOROBENZENE	BDL	50000
	BENZYL ALCOHOL	BDL	50000
	1,2-DICHLOROBENZENE	BDL	50000
	2-METHYLPHENOL	BDL	50000
	BIS(2-CHLORDISOPROPYL)ETHER	BDL	50000
	4-METHYLPHENOL	BDL	50000
	N-NITROSO-DI-N-PROPYLAMINE	BDL	50000
	HEXACHLOROETHANE	BDL	50000
	NITROBENZENE	BDL	50000
	ISOPHORONE	BDL	50000
	2-NITROPHENOL	BDL	50000
	2,4-DIMETHYLPHENOL	BDL	50000
	BENZOIC ACID	BDL	250000
	BIS(2-CHLOROETHOXY)METHANE	BDL	50000
	2,4-DICHLOROPHENOL	BDL	50000
	1,2,4-TRICHLOROBENZENE	BDL	50000
548	NAPHTHALENE	6000 J	50000
	4-CHLOROANILINE	BDL	50000
	HEXACHLOROBUTADIENE	BDL	50000
	P-CHLORO-M-CRESOL	BDL	50000
613	2-METHYLNAPHTHALENE	6500 J	50000
	HEXACHLOROCYCLOPENTADIENE	BDL	50000
	2,4,6-TRICHLOROPHENOL	BDL	50000
	2,4,5-TRICHLOROPHENOL	BDL	250000
	2-CHLORONAPHTHALENE	BDL	50000
	2-NITROANILINE	BDL	250000
	DIMETHYL PHTHALATE	BDL	50000
	ACENAPHTHYLENE	BDL	50000
	3-NITROANILINE	BDL	250000
717	ACENAPHTHENE	34000 J	50000

COMPOUND LIST

SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLSGERAGHTY & MILLER SAMPLE ID
COMPUCHEM SAMPLE IDPHASC-SPLIT
138511SAMPLE WEIGHT 1.02 G
FINAL EXTRACT VOLUME 0.9 ML
DILUTION FACTOR 5.0
DATA REPORTED ON DRY WEIGHT BASIS 1.01

SCAN	ANALYTES:	CONCENTRATION (UG/KG)	DETECTION LIMIT (UG/KG)
	2,4-DINITROPHENOL	BDL	250000
	4-NITROPHENOL	BDL	250000
733	DIBENZOFURAN	14000 J	50000
	2,4-DINITROTOLUENE	BDL	50000
	2,6-DINITROTOLUENE	BDL	50000
	DIETHYL PHTHALATE	BDL	50000
	4-CHLOROPHENYL PHENYL ETHER	BDL	50000
766	FLUORENE	24000 J	50000
	4-NITROANILINE	BDL	250000
	4,6-DINITRO-2-METHYLPHENOL	BDL	250000
	N-NITROSODIPHENYLAMINE	BDL	50000
	4-BROMOPHENYL PHENYL ETHER	BDL	50000
	HEXACHLOROBENZENE	BDL	50000
843	PENTACHLOROPHENOL	21000 J	250000
857	PHENANTHRENE	220000	50000
861	ANTHRACENE	26000 J	50000
	DI-N-BUTYL PHTHALATE	BDL	50000
972	FLUORANTHENE	340000	50000
993	PYRENE	440000	50000
	BUTYLBENZYL PHTHALATE	BDL	50000
	3,3'-DICHLOROBENZIDINE	BDL	100000
	BIS(2-ETHYLHEXYL)PHTHALATE	BDL	50000
1108	BENZO(A)ANTHRACENE	290000	50000
1112	CHRYSENE	360000	50000
	DI-N-OCTYL PHTHALATE	BDL	50000
1215	BENZO(B)FLUORANTHENE	590000 II	50000
1215	BENZO(K)FLUORANTHENE	590000 II	50000
1254	BENZO(A)PYRENE	290000	50000
1429	INDENO(1,2,3-C,D)PYRENE	200000	50000
1430	DIBENZO(A,H)ANTHRACENE	100000	50000
1479	BENZO(G,H,I)PERYLENE	220000	50000
	1,2,3,4-TETRACHLOROBENZENE	BDL	50000

COMPOUND LIST

- SEMIVOLATILE ORGANICS
BY EPA CLP PROTOCOLSGERAGHTY & MILLER SAMPLE ID
COMPUCHEM SAMPLE IDPHASC-SPLIT
138511SAMPLE WEIGHT 1.02 G
FINAL EXTRACT VOLUME 0.9 ML
DILUTION FACTOR 5.0
DATA REPORTED ON DRY WEIGHT BASIS 1.01

SURROGATES:	% RECOVERY	CONTROL RANGE
2-FLUOROPHENOL	32	25 - 121
D5-PHENOL	31	24 - 113
D5-NITROBENZENE	29	23 - 120
2-FLUOROBIPHENYL	34	30 - 115
2,4,6-TRIBROMOPHENOL	31	19 - 122
D14-TERPHENYL	45	18 - 137
D10-PYRENE	42	33 - 128

BDL - BELOW DETECTION LIMIT.

J - ESTIMATED CONCENTRATION OF ANALYTE WHICH IS PRESENT
BUT AT A CONCENTRATION LESS THAN THE STATED DETECTION
LIMIT.

II - COELUTING ISOMERS

GROUND-WATER SAMPLES

AUGUST 1987

SAMPLING AND RECEIPT CHRONICLE

GERAGHTY & MILLER I.D.	SAMPLING DATE	RECEIPT DATE
1. MWR-6B-SPLIT	7-28-87	7-30-87
2. MW-14-B-SPLIT	7-29-87	7-30-87
3. MW-17S-SPLIT	7-30-87	7-30-87
4. MW-19S-SPLIT	7-30-87	7-30-87
5. MW-23S-SPLIT	7-30-87	8-01-87
6. LDAWG-SPLIT-REPEAT	8-02-87	8-04-87
7. MWR-7A-SPLIT	8-05-87	8-07-87
8. MW-20A-SPLIT	8-05-87	8-07-87
9. REC WELL SPLIT	8-06-87	8-07-87
10. MW-26A-SPLIT	8-10-87	8-13-87
11. MW-15B-SPLIT	8-11-87	8-13-87
12. CHENOWITH #1-SPLIT	8-13-87	8-15-87
13. MW-4B-SPLIT	8-13-87	8-15-87
14. MWR-2A-SPLIT	8-15-87	8-18-87
15. MW-16B-SPLIT	8-23-87	8-27-87
16. MW-33B-SPLIT	8-24-87	8-27-87

SODIUM DATA

GERAGHTY & MILLER I.D.	COMPUCEM I.D.	SODIUM (UG/L)	DETECTION LIMIT (UG/L)	ANALYSIS DATE
1. MWR-68-SPLIT	143703	22000	5000	8-19-87
2. MW-14-B-SPLIT	143903	21000	5000	8-19-87
3. MW-17S-SPLIT	143904	26000	5000	8-19-87
4. MW-19S-SPLIT	143905	200000	5000	8-19-87
5. MW-23S-SPLIT	144114	15000	5000	8-19-87
6. LDWIG-SPLIT-REPEAT	144486	73500000	5000	10-20-87
7. MWR-7A-SPLIT	145125	26000	5000	8-19-87
8. MW-20A-SPLIT	145127	30000	5000	8-19-87
9. REC WELL SPLIT	145129	31000	5000	8-19-87
10. MW-26A-SPLIT	146308	64000	5000	8-27-87
11. MW-15B-SPLIT	146310	21000	5000	8-27-87
12. CHENOWITH #1-SPLIT	147111	41000	5000	8-27-87
13. MW-4B-SPLIT	147112	19000	5000	8-27-87
14. MWR-2A-SPLIT	147190	32000	5000	8-31-87
15. MW-16B-SPLIT	149036	26000	5000	8-31-87
16. MW-33B-SPLIT	149033	22000	5000	8-31-87
17. BLANK	147193	BDL	5000	8-27-87
19. BLANK	145836	BDL	5000	8-19-87
20. BLANK	149054	BDL	5000	8-31-87
21. BLANK	157246	BDL	5000	10-20-87

TOTAL AND "FREE" CYANIDE DATA

GERAGHTY & MILLER I.D.	COMPUCHEM I.D.	TOTAL CYANIDE (MG/L)	"FREE" CYANIDE (MG/L)	DETECTION LIMIT (MG/L)	SAMPLE PREP DATE	ANALYSIS DATE
1. MWR-6B-SPLIT	143703	0.83	0.079	0.010	8-10-87	8-21-87
2. MW-14-B-SPLIT	143903	0.67	0.044	0.010	8-10-87	8-21-87
3. MW-17S-SPLIT	143904	0.53	0.018	0.010	8-10-87	8-21-87
4. MW-19S-SPLIT	143905	BDL	BDL	0.010	8-10-87	8-21-87
5. MW-23S-SPLIT	144114	0.22	0.022	0.010	8-10-87	8-21-87
6. LDAWG-SPLIT-REPEAT	144486	45	11	0.010	8-10-87	8-21-87
7. MWR-7A-SPLIT	145125	0.76	0.046	0.010	8-14-87	8-26-87
8. MW-20A-SPLIT	145127	BDL	BDL	0.010	8-14-87	8-21-87
9. REC WELL SPLIT	145129	0.01	BDL	0.010	8-14-87	8-21-87
10. MW-26A-SPLIT	146308	0.30	0.015	0.010	8-19-87	8-26-87
11. MW-15B-SPLIT	146310	0.90	0.017	0.010	8-19-87	8-26-87
12. CHENOWITH #1-SPLIT	147111	BDL	BDL	0.010	8-25-87	8-26-87
13. MW-4B-SPLIT	147112	0.02	BDL	0.010	8-25-87	8-26-87
14. MWR-2A-SPLIT	147190	0.65	0.026	0.010	8-19-87	8-21-87
15. MW-16B-SPLIT	149036	0.28	0.021	0.010	9-04-87	9-04-87
16. MW-33B-SPLIT	149033	2.20	0.085	0.010	9-04-87	9-04-87
17. BLANK	154216	BDL	BDL	0.010	9-04-87	9-04-87

FLUORIDE DATA

GERAGHTY & MILLER I.D.	COMPUCHEM I.D.	FLUORIDE (MG/L)	DETECTION LIMIT (MG/L)	ANALYSIS DATE
1. MWR-6B-SPLIT	143703	0.38	0.01	8-05-87
2. MW-14-B-SPLIT	143903	0.39	0.01	8-05-87
3. MW-17S-SPLIT	143904	0.46	0.01	8-05-87
4. MW-19S-SPLIT	143905	5.1	0.01	8-05-87
5. MW-23S-SPLIT	144114	0.28	0.01	8-28-87
6. LDAWG-SPLIT-REPEAT	144486	7900	0.01	8-28-87
7. MWR-7A-SPLIT	145125	0.67	0.01	8-28-87
8. MW-20A-SPLIT	145127	0.64	0.01	8-28-87
9. REC WELL SPLIT	145129	0.84	0.01	8-28-87
10. MW-26A-SPLIT	146308	0.62	0.01	8-28-87
11. MW-15B-SPLIT	146310	0.38	0.01	8-28-87
12. CHENOWITH #1-SPLIT	147111	0.93	0.01	8-28-87
13. MW-4B-SPLIT	147112	0.74	0.01	8-28-87
14. MWR-2A-SPLIT	147190	0.61	0.01	8-28-87
15. MW-16B-SPLIT	149036	1.8	0.01	10-6-87
16. MW-33B-SPLIT	149033	0.20	0.01	10-6-87
17. BLANK	BLANK	BDL	0.01	8-05-87
18. BLANK	BLANK	BDL	0.01	8-28-87

SULFATE DATA

GERAGHTY & MILLER I.D.	COMPUCHEM I.D.	SULFATE (MG/L)	DETECTION LIMIT (MG/L)	ANALYSIS DATE
1. MWR-6B-SPLIT	143703	83	1.0	8-27-87
2. MW-14-B-SPLIT	143903	79	1.0	8-27-87
3. MW-17S-SPLIT	143904	110	1.0	8-27-87
4. MW-19S-SPLIT	143905	1300	1.0	8-27-87
5. MW-23S-SPLIT	144114	25	1.0	8-27-87
6. LDAQ-SPLIT-REPEAT	144486	12000	1.0	8-27-87
7. MWR-7A-SPLIT	145125	29	1.0	8-27-87
8. MW-20A-SPLIT	145127	31	1.0	8-27-87
9. REC WELL SPLIT	145129	22	1.0	8-27-87
10. MW-26A-SPLIT	146308	75	1.0	8-27-87
11. MW-15B-SPLIT	146310	92	1.0	8-27-87
12. CHENOWITH #1-SPLIT	147111	52	1.0	8-27-87
13. MW-4B-SPLIT	147112	53	1.0	8-27-87
14. MWR-2A-SPLIT	147190	54	1.0	8-27-87
15. MW-16B-SPLIT	149036	21	1.0	9-02-87
16. MW-33B-SPLIT	149033	146	1.0	9-02-87
17. BLANK	BLANK	BDL	1.0	8-27-87

COMPOUND LIST

VOLATILE ORGANICS
BY METHOD 8240GERAGHTY & MILLER
COMPUCHEM SAMPLE IDLDAWG-SPLIT-REPEAT
144492

SAMPLE VOLUME

5.0 ML

SCAN	ANALYTES:	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
	CHLOROMETHANE	BDL	10
	BROMOMETHANE	BDL	10
	VINYL CHLORIDE	BDL	10
	CHLOROETHANE	BDL	10
134	METHYLENE CHLORIDE	3.3	5
144	ACETONE (2-PROPANONE)	48	10
	CARBON DISULFIDE	BDL	5
	1,1-DICHLOROETHYLENE	BDL	5
	1,1-DICHLOROETHANE	BDL	5
	TRANS-1,2-DICHLOROETHYLENE	BDL	5
	CHLOROFORM	BDL	5
	1,2-DICHLOROETHANE	BDL	5
	1,4-DIFLUOROBENZENE	BDL	5
	2-BUTANONE	BDL	5
	1,1,1-TRICHLOROETHANE	BDL	10
	CARBON TETRACHLORIDE	BDL	5
	VINYL ACETATE	BDL	5
	BROMODICHLOROMETHANE	BDL	10
	1,2-DICHLOROPROPANE	BDL	5
	TRANS-1,3-DICHLOROPROPENE	BDL	5
	TRICHLOROETHYLENE	BDL	5
	CHLORODIBROMOMETHANE	BDL	5
	1,1,2-TRICHLOROETHANE	BDL	5
	BENZENE	BDL	5
	CIS-1,3-DICHLOROPROPENE	BDL	5
	2-CHLOROETHYL VINYL ETHER	BDL	10
	BROMOFORM	BDL	5
	4-METHYL-2-PENTANONE	BDL	10
	2-HEXANONE	BDL	10
	TETRACHLOROETHENE	BDL	5
	1,1,2,2-TETRACHLOROETHANE	BDL	5
	TOLUENE	BDL	5
	CHLOROBENZENE	BDL	5
	ETHYLBENZENE	BDL	5
	STYRENE	BDL	5
	M-XYLENE	BDL	5
	O,P-XYLENE	BDL	5

COMPOUND LIST

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VOLATILE ORGANICS
BY METHOD 8240GERAGHTY & MILLER
COMPUCHEM SAMPLE IDLDAWG-SPLIT-REPEAT
144492

SAMPLE VOLUME

5.0 ML

SCAN ANALYTES:

CONCENTRATION
(UG/L)DETECTION
LIMIT
(UG/L)

SURROGATES:

% RECOVERY CONTROL RANGE

D4-1,2-DICHLOROETHANE
BROMOFLUOROBENZENE
D8-TOLUENE

106	76	-	114
108	86	-	115
97	88	-	110

BDL - BELOW DETECTION LIMIT

J - ESTIMATED CONCENTRATION OF ANALYTE WHICH IS PRESENT BUT
AT A CONCENTRATION LESS THAN THE STATED DETECTION LIMIT.

VOLATILE DUPLICATE SAMPLE SPIKES

IN SAMPLE L0AWG-SPLIT-REPEAT

SPIKE COMPOUND:	AMOUNT ADDED UG	ORIGINAL CONCENTRATION UG	--% RECOVERY --		RPD	--- QC LIMITS ---	
			MS	MSD		% RECOVERY	RPD
1,1-DICHLOROETHENE	50	0	125	114	10	59 - 172	42
TRICHLOROETHENE	50	0	107	118	10	62 - 137	40
BENZENE	50	0	109	124	13	66 - 142	28
TOLUENE	50	0	103	118	14	59 - 139	38
CHLOROBENZENE	50	0	106	114	7	60 - 133	28