Portland Harbor (PORND)
Sediment Investigation
Reference 6
Part 2 of 3

B77169

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MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RNM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organics (Semivolatiles, Pesticides, and PCBs)
SDG No: U199
Site: Willamette River

WORK ASSIGNMENT NO: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABE

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 14 samples, SDG U199, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for semivolatiles, pesticides and PCBs by Analytical Resources, Inc. The samples were numbered:

97424913	97424915	97424916	97424918	97424919
97424920	97424921	97424923	97424925	97424927
97424929	97424931	97424933	97424935	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1-05, February 1994).

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1. Timeliness

All samples met holding time criteria except the following:

Sample Number	Fraction	Sampling Date	Extraction Date	Analysis Date	Holding Time	QC Limit
97424919DL	BNA	10/15/97	10/27/97	12/15/97	49 days	40 days

Results and quantitation limits for samples listed above were qualified as estimated (J).

2. GC/MS Instrument Performance Check

All tuning check compound mass abundances and ratios were within required limits.

3. Initial Calibration

All target compound list (TCL) analytes and system monitoring compounds were within required limits for the initial calibration with average relative response factors $\overline{RRF}$ greater than or equal to 0.05.

All target compound list (TCL) analytes and system monitoring compounds were within required limits for the initial calibration with $\overline{RRF}$ percent relative standard deviations (percent RSD) less than 30 percent except:

Date	Compound	Percent RSD	Associated Samples
9/3/97	2,4-Dinitrophenol	31.1	None
11/21/97	2,4-Dinitrophenol	31.8	None
11/24/97	2,4-Dinitrophenol	35.3	97424919, 97424916, 97424915

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Date	Compound	Percent RSD	Associated Samples
12/1/97	2,4-Dinitrophenol	47.1	97424915DL, 97424916DL, 97424918DL, 97424918, 97424913, 97424915RE, 97424916RE, 97424919RE, 97424925, 97424920DL, 97424920, 97424923, 97424925RE, 97424921, 97424923RE, 97424927, 97424929, 97424931, 97424933, 97424935, 97424935DL, 97424919DL

Results and quantitation limits for compounds associated with the above calibrations and samples have been qualified as estimated (J) as a high RSD is indicative of calibration nonlinearity.

4. Continuing Calibrations

All target compound list (TCL) analytes were within required limits for the continuing calibrations with average relative response factors $\overline{RRF}$ greater than or equal to 0.05.

All target compound list (TCL) analytes were within required limits for the continuing calibration with $\overline{RRF}$ percent differences less than 25 percent except:

Date	Time	Compound	% Diff	Associated Samples
11/18/97	17:34	Di-n-octylphthalate Terphenyl-d14 (surr)	-26.2 -28.9	None
12/1/97	18:18	Pentachlorophenol 2,4,6-Dibromophenol (surr)	-25.6 -50.7	97424915DL, 97424916DL, 97424918DL, 97424918, 97424913, 97424915RE, 97424916RE, 97424919RE

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Date	Time	Compound	% Diff	Associated Samples
12/4/97	11:32	2,4,6-Dibromophenol (surr)	-29.3	97424920DL, 97424920, 97424923, 97424925RE, 97424921, 97424923RE
12/4/97	13:01	2,4-Dinitrophenol 4,6-Dinitro-2-methylphenol	-32.3 -25.2	97424927, 97424929, 97424931, 97424933, 97424935, 97424935DL
12/15/97	12:00	2-Nitroaniline	25.3	97424919DL

Positive results for compounds associated with the above calibrations and samples have been qualified as estimated (J).

5. Detection Limits—Acceptable

Laboratory reporting limits are less than or equal to project required quantitation limits.

6. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

The following compounds were detected in laboratory method blanks.

Blank ID	Compound (Retention Time)	Concentration (µg/kg)
Method Blank	bis(2-Ethylhexyl)phthalate	24
	1,1,2,2-Tetrachloroethane (6.72)	46
	Unknown Cycloalkane (18.25)	29
	Unknown (27.63)	24

Reported levels of the above compounds were qualified as undetected with an adjusted quantitation limit (UJ) in samples if concentrations were less than five times concentrations present in the blank (ten times for common laboratory contaminants [e.g., phthalates]).

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b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples except:

Sample	Fraction	Compound	Percent Recovery	QC Limits
97424915	Pest/PCB	TCMX	28.5	30-150
97424916	Pest/PCB	TCMX	29.2	30-150
97424927	Pest/PCB	TCMX	29.8	30-150
97424929	Pest/PCB	TCMX	29	30-150
97424920	Pest/PCB	TCMX	22	30-150
97424921	Pest/PCB	TCMX	28	30-150
		DCB	28.8	30-150

Results and quantitation limits for samples listed above were qualified as estimated (J/UJ). For samples with any surrogate recovery less than 10 percent, positive results were qualified as estimated (J) and quantitation limits for undetected compounds were rejected (R).

8. Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) or matrix spike duplicate (MSD) percent recovery for the following compounds were outside QC guidelines.

Sample	Fraction	Compound	Percent Recovery	QC Limits
97424919	BNA-MS	Pyrene	333	35-142
	BNA-MSD	Pyrene	190	35-142

Relative percent differences (RPD) between the MS and MSD percent recoveries exceeded QC guidelines for the following compounds:

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Sample	Fraction	Compound	RPD	QC Limits
97424919	BNA	Pyrene	55	36
		Acenaphthene	22	19

No action was taken based solely on MS/MSD data since surrogate compound recoveries were acceptable.

9. Field Duplicate Analysis

Samples 97424915 and 97424916 were field duplicates. Results exhibited reasonable agreement, with the exception of fluorene (RPD = 69.77%). No action was required since field duplicate results reflect field variability rather than laboratory precision.

10. Internal Standards Performance

Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas for all samples except:

Internal Standard	Sample	Area	QC Limits
97424919	1,4-Dichlorobenzene-d4	154308	27564-110256
	Napththalene-d8	418000	88230-352920
	Acenaphthene-d10	237520	53850-215400
97424916	1,4-Dichlorobenzene-d4	175796	27564-110256
	Napththalene-d8	464832	88230-352920
	Acenaphthene-d10	235514	53850-215400
97424915	1,4-Dichlorobenzene-d4	151758	27564-110256
	Napththalene-d8	438880	88230-352920
	Acenaphthene-d10	215469	53850-215400
97424915RE	1,4-Dichlorobenzene-d4	131004	31217-124868
97424916RE	1,4-Dichlorobenzene-d4	163918	31217-124868
	Napththalene-d8	417446	89790-359160
	Acenaphthene-d10	234918	53821-215284

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Internal Standard	Sample	Area	QC Limits
97424919RE	1,4-Dichlorobenzene-d4	163414	31217-124868
	Napththalene-d8	387332	89790-359160
	Acenaphthene-d10	222592	53821-215284
97424925	1,4-Dichlorobenzene-d4	199720	47720-190880
97424923	1,4-Dichlorobenzene-d4	169236	39462-157848
97424925RE	1,4-Dichlorobenzene-d4	187658	39462-157848
97424923RE	1,4-Dichlorobenzene-d4	159442	39462-157848

Positive results for analytes associated with the above internal standards and samples were qualified as estimated (J).

11. GC/ECD Instrument Performance

a. Resolution Check Mixture

The resolution check mixture was analyzed at the proper frequency. Resolution (valley depth) between adjacent peaks was greater than 60 percent of the shorter peak.

b. Performance Evaluation Mixture

i. Frequency

Samples were analyzed at the proper frequency.

ii. Resolution

Resolution was greater than 90 percent for all adjacent peaks.

iii. Retention Time Windows

Retention times of all pesticides were within windows calculated from the initial calibration.

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iv. Pesticide Recovery

Recovery for all single component pesticides and surrogate compounds were within QC limits of 75 to 125 percent for both GC columns.

v. DDT/Endrin Breakdown

Percent breakdown for 4,4'-DDT and/or Endrin exceeded QC criteria of 20 percent for each compound or 30 percent for combined breakdown in the samples listed:

Date	Time	Compound	Percent Breakdown	Associated Samples
11/13/97	17:07	Combined % Breakdown	31.6	97424913, 97424915
11/18/97	18:33	Endrin % Breakdown	23.1	None
		Combined % Breakdown	32.4	

Positive results in associated samples for compounds listed above were qualified as estimated (J). Positive results for breakdown products were qualified as tentatively present with estimated concentration (NJ). If parent compounds listed above were not found, but breakdown products were detected, quantitation limits for compounds listed in the table above were rejected (R).

12. Pesticide Initial Calibration

a. Individual Standard Mixtures

Resolution between adjacent peaks for the initial calibration, mid level concentration was greater than 90 percent.

Retention time windows were calculated correctly.

Appropriate standards concentrations were used and peak heights of 50 to 100 percent of full scale were obtained.

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Calibration factor percent relative standard deviation (%RSD) exceeded QC criteria of 20 percent for pesticides and 30 percent for surrogates listed below:

Date	GC Column	Analyte	% RSD	Associated Samples
11/11/97	DB-5	delta-BHC 4,4'-DDT	21.9 27.3	97424913, 97424915, 97424916, 97424920, 97424921, 97424923, 97424927, 97424929, 97424933, 97424935, 97424920DL
11/19/97	DB-5	4,4'-DDT	25.1	97424925

Results and quantitation limits for analytes listed above have been qualified as estimated (J).

13. Pesticide Calibration Verification

Instrument blanks and PEM samples were analyzed at the proper frequency.

Resolution between adjacent peaks in individual pesticide mixtures exceeded 90 percent.

The difference between actual and calculated concentrations of individual pesticides exceeded QC criteria of ±25 percent for the following pesticides:

Date	Time	GC Column	Compound	% Diff	Associated Samples
11/11/97	11:41	DB-5	4,4'-DDT	30	None
11/11/97	19:56	DB-5	4,4'-DDT	28	None
11/14/97	7:57	DB-5	4,4'-DDT	34	None
11/18/97	18:33	DB-5 DB-608	4,4'-DDT 4,4'-DDT	39 42	None

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Date	Time	GC Column	Compound	% Diff	Associated Samples
11/18/97	11:24	DB-5	delta-BHC	55	97424920DL
			Endosulfan sulfate	53	
			Endrin ketone	43	
		DB-608	delta-BHC	40	
			Endosulfan sulfate	53	
			Endrin ketone	40	
11/19/97	15:39	DB-5	4,4'-DDT	32	None
11/19/97	23:53	DB-5	4,4'-DDT	28	97424925
11/20/97	17:27	DB-5	4,4'-DDT	31	None

Results and quantitation limits for pesticides listed above were qualified as estimated (J).

14. Pesticide Cleanup Checks

a. Florisil Cartridge Cleanup

Recovery for mixture A pesticides and surrogates were within QC limits of 80 to 120 percent. Recovery of 2,4,5-trichlorophenol was less than 5 percent as required.

b. Gel Permeation Cleanup (GPC)

All pesticides in the matrix spiking solution met recovery limits of 80 to 110 percent. Aroclor-1016 and 1260 patterns matched those of standards.

GPC blank concentrations did not exceed one-half the CRDL for any target analytes.

15. Sample Analysis

No unusual problems were noted.

The following samples had percent differences between the columns greater than 35% for the analytes listed below:

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Sample No.	Compound	DB-5 Conc.	DB-608 Conc.	% Difference
97424913	4,4'-DDE	4.1	2.8	46.4
97424915	4,4'-DDE	5.1	3.2	59.4
	4,4'-DDD	14	7	100
	Aroclor-1254	52	25	110
	Aroclor-1260	62	30	110
97424916	4,4'-DDE	5.3	3.4	55.9
	4,4'-DDD	15	7.9	89.9
	4,4'-DDT	20	14	42.9
97424920	Aroclor-1242	64	28	130
	Aroclor-1254	890	500	78
97424921	Aroclor-1254	25	17	47
97424923	Aroclor-1254	47	30	57
97424927	4,4'-DDE	3.7	2.3	60.9
	4,4'-DDD	3.1	2.2	40.9
97424929	4,4'-DDE	3.9	2.0	95
	4,4'-DDD	3.2	2.2	45.5
97424933	4,4'-DDD	14	7.6	84.2
	Aroclor-1260	160	110	45

Differences can arise from analytical interferences on one column. However, the percent differences are not deemed significant at the reported concentrations. The lower concentration was reported for each analyte.

16. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

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Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424913 WR-SD-SD049-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.1%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**54 ~~M~~ N**
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**550**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**150**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**77 ~~M~~ N**
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	**30**
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**310**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	**160**
606-20-2	2,6-Dinitrotoluene	99 U

661 JMB 1/27/99

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment
Data Release Authorized: PWB
Reported: 12/22/97

Sample No: 97424913
WR-SD-SD049-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.1%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**310**
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U J
85-01-8	**Phenanthrene**	**830**
86-74-8	**Carbazole**	**50**
120-12-7	**Anthracene**	**170**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**1,200**
129-00-0	**Pyrene**	**1,000**
85-68-7	**Butylbenzylphthalate**	**26 ~~M~~N**
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**560**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**140 ~~M~~U**
218-01-9	**Chrysene**	**880 ~~M~~N**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**710**
207-08-9	**Benzo(k)fluoranthene**	**490**
50-32-8	**Benzo(a)pyrene**	**380**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**220**
53-70-3	**Dibenz(a,h)anthracene**	**42 ~~M~~N**
191-24-2	**Benzo(g,h,i)perylene**	**200**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	64.8%	d5-Phenol	64.9%
2-Fluorobiphenyl	73.8%	2-Fluorophenol	80.1%
d14-p-Terphenyl	81.6%	2,4,6-Tribromophenol	70.3%
d4-1,2-Dichlorobenzene	47.2%	d4-2-Chlorophenol	64.4%

FORM-1

662 JMB 1/27

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ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424913
WR-SD-SD049-0000A

Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: CNB
Reported: 12/22/97

Date Analyzed: 12/02/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	9.47	SVOA	790 JN
2.	90-12-0	Naphthalene, 1-methyl-	15.65	SVOA	190 JN
3.	--	Unknown Cycloalkane	16.17	SVOA	190 JN
4.	--	Unknown	16.43	SVOA	130 JN
5.	--	Naphthalene, Dimethyl Iso	17.58	SVOA	140 JN
6.	--	Unknown Cycloalkane	17.97	SVOA	160 JN
7.	--	Unknown	18.92	SVOA	140 JN
8.	--	Naphthalene, Trimethyl Is	19.97	SVOA	140 JN
9.	--	Unknown C15.H12 PNA	24.82	SVOA	350 JN
10.	--	Unknown PNA	25.05	SVOA	570 JN
11.	--	Unknown Alcohol	25.33	SVOA	260 JN
12.	57-10-3	Hexadecanoic acid	25.48	SVOA	860 JN
13.	--	Unknown	25.85	SVOA	600 JN
14.	10544-50-0	Sulfur, mol. (S8)	26.65	SVOA	1,000 JN
15.	--	Unknown	27.30	SVOA	720 JN
16.	483-65-8	Phenanthrene, 1-methyl-7-	28.73	SVOA	1,900 JN
17.	--	Unknown Acid Ester	33.52	SVOA	2,500 JN
18.	--	Unknown Aldehyde	34.82	SVOA	560 JN
19.	--	Unknown Alkane	37.18	SVOA	310 JN
20.	83-47-6	.gamma.-Sitosterol	39.33	SVOA	3,400 JN

699
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: GWB
Reported: 12/22/97

Sample No: 97424915 WR-SD-SD048-0000A

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	**Benzyl Alcohol**	5.3 ~~MJ~~ N
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	61 J
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	94 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	530 J
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	57 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	320 J
106-47-8	4-Chloroaniline	57 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	**2-Methylnaphthalene**	320 J
77-47-4	Hexachlorocyclopentadiene	94 U
88-06-2	2,4,6-Trichlorophenol	94 U
95-95-4	2,4,5-Trichlorophenol	94 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	94 U
131-11-3	Dimethylphthalate	19 U
208-96-8	**Acenaphthylene**	55 J
99-09-2	3-Nitroaniline	110 U
83-32-9	**Acenaphthene**	1,200 J
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	94 U
132-64-9	**Dibenzofuran**	1,000 J
606-20-2	2,6-Dinitrotoluene	94 U

FORM-1

723 gm 1/27

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424915
WR-SD-SD048-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	94 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**1,500** J
100-01-6	4-Nitroaniline	94 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	94 U
85-01-8	**Phenanthrene**	~~5,500 E~~ 6800 D
86-74-8	**Carbazole**	**230**
120-12-7	**Anthracene**	**1,400**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	~~3,400 E~~ 4500 D
129-00-0	**Pyrene**	~~2,900 E~~ 3900 D
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	94 U
56-55-3	**Benzo(a)anthracene**	**1,000**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**89** BU
218-01-9	**Chrysene**	**980**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**870**
207-08-9	**Benzo(k)fluoranthene**	**710**
50-32-8	**Benzo(a)pyrene**	**940**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**350**
53-70-3	**Dibenz(a,h)anthracene**	**69** N
191-24-2	**Benzo(g,h,i)perylene**	**290**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	69.0%	d5-Phenol	68.7%
2-Fluorobiphenyl	85.5%	2-Fluorophenol	75.8%
d14-p-Terphenyl	67.8%	2,4,6-Tribromophenol	53.3%
d4-1,2-Dichlorobenzene	60.0%	d4-2-Chlorophenol	66.7%

FORM-1

00728

JMB 1/27/9

724

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424915
WR-SD-SD048-0000A

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: AWB
Reported: 12/22/97

Date Analyzed: 11/27/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	626-38-0	2-Pentanol,_acetate	9.63	SVOA	610 JN
2.	--	Unknown_Alkane	15.03	SVOA	420 JN
3.	90-12-0	Naphthalene,_1-methyl-	15.83	SVOA	740 JN
4.	--	Unknown	16.30	SVOA	420 JN
5.	--	Naphthalene,_Ethyl_Isomer	17.30	SVOA	640 JN
6.	--	Naphthalene,_Dimethyl_Iso	17.50	SVOA	710 JN
7.	--	Naphthalene,_Dimethyl_Iso	17.77	SVOA	1,200 JN
8.	--	Naphthalene,_Dimethyl_Iso	18.10	SVOA	550 JN
9.	--	Unknown_Alkane	19.83	SVOA	780 JN
10.	--	Unknown_Alkane	22.12	SVOA	2,200 JN
11.	--	Unknown_C15.H10_PNA	25.32	SVOA	1,200 JN
12.	--	Unknown_PNA	31.02	SVOA	410 JN
13.	54087-32-0	7H-Furo[3,2-g][1]benzopyr	33.32	SVOA	500 JN
14.	--	Unknown_Alkane	33.73	SVOA	1,500 JN
15.	--	Unknown_Alkane	34.32	SVOA	410 JN
16.	--	Unknown_Alkane	35.60	SVOA	1,800 JN
17.	--	Unknown_Alkane	36.47	SVOA	380 JN
18.	--	Unknown	36.70	SVOA	260 JN
19.	--	Unknown_Alkane	37.37	SVOA	500 JN
20.	--	Unknown_Sterol_type	38.13	SVOA	740 JN

768
JMB 11/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2

Sample No: 97424915
DILUTION-2

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/23/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:6
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	110 U
111-44-4	Bis-(2-Chloroethyl) Ether	230 U
95-57-8	2-Chlorophenol	110 U
541-73-1	1,3-Dichlorobenzene	110 U
106-46-7	1,4-Dichlorobenzene	110 U
100-51-6	Benzyl Alcohol	110 U
95-50-1	1,2-Dichlorobenzene	110 U
95-48-7	2-Methylphenol	110 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	110 U
106-44-5	4-Methylphenol	110 U
621-64-7	N-Nitroso-Di-N-Propylamine	230 U
67-72-1	Hexachloroethane	110 U
98-95-3	Nitrobenzene	110 U
78-59-1	Isophorone	110 U
88-75-5	2-Nitrophenol	570 U
105-67-9	2,4-Dimethylphenol	110 U
65-85-0	Benzoic Acid	1,100 U
111-91-1	bis(2-Chloroethoxy) Methane	110 U
120-83-2	2,4-Dichlorophenol	340 U
120-82-1	1,2,4-Trichlorobenzene	110 U
91-20-3	**Naphthalene**	**390**
106-47-8	4-Chloroaniline	340 U
87-68-3	Hexachlorobutadiene	110 U
59-50-7	4-Chloro-3-methylphenol	230 U
91-57-6	**2-Methylnaphthalene**	**350**
77-47-4	Hexachlorocyclopentadiene	570 U
88-06-2	2,4,6-Trichlorophenol	570 U
95-95-4	2,4,5-Trichlorophenol	570 U
91-58-7	2-Chloronaphthalene	110 U
88-74-4	2-Nitroaniline	570 U
131-11-3	Dimethylphthalate	110 U
208-96-8	Acenaphthylene	110 U
99-09-2	3-Nitroaniline	680 U
83-32-9	**Acenaphthene**	**2,400**
51-28-5	2,4-Dinitrophenol	1,100 U J
100-02-7	4-Nitrophenol	570 U
132-64-9	**Dibenzofuran**	**1,800**
606-20-2	2,6-Dinitrotoluene	570 U

JME 1/27

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2

Sample No: 97424915
DILUTION-2

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/23/97

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:6
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	570 U
84-66-2	Diethylphthalate	110 U
7005-72-3	4-Chlorophenyl-phenylether	110 U
86-73-7	**Fluorene**	**2,900**
100-01-6	4-Nitroaniline	570 U
534-52-1	4,6-Dinitro-2-Methylphenol	1,100 U
86-30-6	N-Nitrosodiphenylamine	110 U
101-55-3	4-Bromophenyl-phenylether	110 U
118-74-1	Hexachlorobenzene	110 U
87-86-5	Pentachlorophenol	570 U J
85-01-8	**Phenanthrene**	**6,800**
86-74-8	**Carbazole**	**310**
120-12-7	**Anthracene**	**2,300**
84-74-2	Di-n-Butylphthalate	110 U
206-44-0	**Fluoranthene**	**4,500**
129-00-0	**Pyrene**	**3,900**
85-68-7	Butylbenzylphthalate	110 U
91-94-1	3,3'-Dichlorobenzidine	570 U
56-55-3	**Benzo(a)anthracene**	**1,300**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**140 ~~J~~ U**
218-01-9	**Chrysene**	**1,500**
117-84-0	Di-n-Octyl phthalate	110 U
205-99-2	**Benzo(b)fluoranthene**	**620**
207-08-9	**Benzo(k)fluoranthene**	**830**
50-32-8	**Benzo(a)pyrene**	**850**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**490**
53-70-3	Dibenz(a,h)anthracene	110 U
191-24-2	**Benzo(g,h,i)perylene**	**600**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	61.0%	d5-Phenol	63.0%
2-Fluorobiphenyl	77.5%	2-Fluorophenol	66.6%
d14-p-Terphenyl	87.4%	2,4,6-Tribromophenol	63.8%
d4-1,2-Dichlorobenzene	66.7%	d4-2-Chlorophenol	64.5%

FORM-1

793 JMI 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424915
DILUTION-2

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: CWB
Reported: 12/23/97

Date Analyzed: 12/01/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Naphthalene,_Ethyl_Isomer	15.65	SVOA	560 JN
2.	---	Naphthalene,_Ethyl_Isomer	17.12	SVOA	780 JN
3.	---	Naphthalene,_Dimethyl_Iso	17.30	SVOA	1,100 JN
4.	---	Naphthalene,_Dimethyl_Iso	17.62	SVOA	870 JN
5.	---	Naphthalene,_Trimethyl_Is	19.65	SVOA	770 JN
6.	---	Unknown_C13.H10.O_PNA____	20.82	SVOA	1,300 JN
7.	---	Unknown_C15.H10_PNA_____	25.03	SVOA	3,600 JN
8.	10544-50-0	Sulfur,_mol._(S8)_____	26.60	SVOA	2,800 JN
9.	---	Unknown_C17.H12_PNA_____	28.67	SVOA	4,900 JN
10.	---	Unknown_C17.H12_PNA_____	28.87	SVOA	2,400 JN
11.	---	Unknown_PNA_____	30.68	SVOA	2,100 JN
12.	---	Unknown_Alcohol_____	32.85	SVOA	1,200 JN
13.	2466-25-3	D-Homo-17a-oxaandrostan-1	33.20	SVOA	2,400 JN
14.	---	Unknown_Sterol_type_____	34.02	SVOA	1,100 JN
15.	---	Unknown_____	34.77	SVOA	2,600 JN
16.	---	Unknown_Sterol_type_____	35.98	SVOA	1,100 JN
17.	---	Unknown_____	36.35	SVOA	1,800 JN
18.	---	Unknown_Alkyl_PNA_____	36.63	SVOA	1,200 JN
19.	13956-29-1	1,3-Benzenediol,_2-[3-met	37.17	SVOA	960 JN
20.	---	Unknown_____	39.25	SVOA	6,300 JN

FORM-1-B

821
JMB 1/27

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: ONB
Reported: 12/22/97

Sample No: 97424915
REANALYSIS WR-SD-SD048-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	**Benzyl Alcohol**	**5.5 ~~J~~ N**
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**64 ~~J~~ NJ**
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	94 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**470 ~~J~~**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	57 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**340**
106-47-8	4-Chloroaniline	57 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	**2-Methylnaphthalene**	**330**
77-47-4	Hexachlorocyclopentadiene	94 U
88-06-2	2,4,6-Trichlorophenol	94 U
95-95-4	2,4,5-Trichlorophenol	94 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	94 U
131-11-3	Dimethylphthalate	19 U
208-96-8	**Acenaphthylene**	**60**
99-09-2	3-Nitroaniline	110 U
83-32-9	**Acenaphthene**	**1,300**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	94 U
132-64-9	**Dibenzofuran**	**1,100**
606-20-2	2,6-Dinitrotoluene	94 U

JMB

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized: AMB
Reported: 12/22/97

Sample No: 97424915
REANALYSIS
WR-SD-SD048-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	94 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	~~1,500 E~~ 2900 D
100-01-6	4-Nitroaniline	94 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	94 U J
85-01-8	**Phenanthrene**	~~3,900 E~~ 6800 D
86-74-8	**Carbazole**	240
120-12-7	**Anthracene**	1,100 ~~M~~ N
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	~~2,400 E~~ 4500 D
129-00-0	**Pyrene**	~~2,400 E~~ 3900 D
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	94 U
56-55-3	**Benzo(a)anthracene**	1,000
117-81-7	**bis(2-Ethylhexyl)phthalate**	110 ~~M~~ NU
218-01-9	**Chrysene**	840
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	930
207-08-9	**Benzo(k)fluoranthene**	510
50-32-8	**Benzo(a)pyrene**	740
193-39-5	**Indeno(1,2,3-cd)pyrene**	380
53-70-3	**Dibenz(a,h)anthracene**	61 ~~M~~ N
191-24-2	**Benzo(g,h,i)perylene**	350

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	72.0%	d5-Phenol	72.9%
2-Fluorobiphenyl	75.4%	2-Fluorophenol	92.0%
d14-p-Terphenyl	75.6%	2,4,6-Tribromophenol	63.5%
d4-1,2-Dichlorobenzene	64.3%	d4-2-Chlorophenol	74.0%

MMB 1/07/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424916 WR-SD-SD048-1000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	**Benzyl Alcohol**	6.1 ~~MJ~~ N
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	68 J
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	740 J
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	360 J
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	350 J
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	61 J
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	1,200 J
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	1,100 J
606-20-2	2,6-Dinitrotoluene	99 U

FORM-1

884
JME 1/27/K

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: DMB
Reported: 12/22/97

Sample No: 97424916
WR-SD-SD048-1000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**1,400** J
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	**Phenanthrene**	~~5,400 E~~ 6800 D
86-74-8	**Carbazole**	**210**
120-12-7	**Anthracene**	**1,300**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	~~3,500 E~~ 4300 D
129-00-0	**Pyrene**	~~3,500 E~~ 4100 D
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**1,100**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**120** BU
218-01-9	**Chrysene**	**960**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**1,100**
207-08-9	**Benzo(k)fluoranthene**	**480**
50-32-8	**Benzo(a)pyrene**	**910**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**470**
53-70-3	**Dibenz(a,h)anthracene**	**82** MN
191-24-2	**Benzo(g,h,i)perylene**	**400**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	68.8%	d5-Phenol	65.6%
2-Fluorobiphenyl	83.3%	2-Fluorophenol	71.2%
d14-p-Terphenyl	64.2%	2,4,6-Tribromophenol	53.4%
d4-1,2-Dichlorobenzene	58.0%	d4-2-Chlorophenol	64.6%

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424916
WR-SD- SD048-1000A

Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: DWR
Reported: 12/22/97

Date Analyzed: 11/27/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	5754-32-5	1,3-Dioxolane-2-ethanol,_	9.65	SVOA	990 JN
2.	--	Unknown_Alkane_____	15.03	SVOA	380 JN
3.	90-12-0	Naphthalene,_1-methyl-___	15.83	SVOA	670 JN
4.	--	Unknown_Cycloalkane_____	16.30	SVOA	420 JN
5.	--	Unknown_Cycloalkane_____	16.57	SVOA	350 JN
6.	--	Naphthalene,_Ethyl_Isomer	17.30	SVOA	510 JN
7.	--	Naphthalene,_Dimethyl_Iso	17.77	SVOA	1,200 JN
8.	--	Naphthalene,_Dimethyl_Iso	18.10	SVOA	480 JN
9.	--	Naphthalene,_Trimethyl_Is	19.53	SVOA	360 JN
10.	1689-64-1	9H-Fluoren-9-ol_____	21.03	SVOA	500 JN
11.	--	Unknown_C15.H12_PNA_____	24.98	SVOA	1,100 JN
12.	--	Unknown_PNA_____	25.32	SVOA	1,100 JN
13.	--	Unknown_____	28.98	SVOA	790 JN
14.	--	Unknown_C17.H12_PNA_____	29.18	SVOA	560 JN
15.	--	Unknown_PNA_____	31.00	SVOA	410 JN
16.	54087-32-0	7H-Furo[3,2-g][1]benzopyr	33.30	SVOA	500 JN
17.	--	Unknown_Alkane_____	33.72	SVOA	1,200 JN
18.	--	Unknown_Alkane_____	35.58	SVOA	1,000 JN
19.	--	Unknown_Alkane_____	37.33	SVOA	570 JN
20.	--	Unknown_Sterol_type_____	38.08	SVOA	380 JN

FORM-1-B

927
JMB
12/7/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: SNP
Reported: 12/22/97

Sample No: 97424916
DILUTION-2

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:6
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	120 U
111-44-4	Bis-(2-Chloroethyl) Ether	240 U
95-57-8	2-Chlorophenol	120 U
541-73-1	1,3-Dichlorobenzene	120 U
106-46-7	1,4-Dichlorobenzene	120 U
100-51-6	Benzyl Alcohol	120 U
95-50-1	1,2-Dichlorobenzene	120 U
95-48-7	2-Methylphenol	120 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	120 U
106-44-5	4-Methylphenol	120 U
621-64-7	N-Nitroso-Di-N-Propylamine	240 U
67-72-1	Hexachloroethane	120 U
98-95-3	Nitrobenzene	120 U
78-59-1	Isophorone	120 U
88-75-5	2-Nitrophenol	590 U
105-67-9	2,4-Dimethylphenol	120 U
65-85-0	Benzoic Acid	1,200 U
111-91-1	bis(2-Chloroethoxy) Methane	120 U
120-83-2	2,4-Dichlorophenol	360 U
120-82-1	1,2,4-Trichlorobenzene	120 U
91-20-3	**Naphthalene**	**440**
106-47-8	4-Chloroaniline	360 U
87-68-3	Hexachlorobutadiene	120 U
59-50-7	4-Chloro-3-methylphenol	240 U
91-57-6	**2-Methylnaphthalene**	**400**
77-47-4	Hexachlorocyclopentadiene	590 U
88-06-2	2,4,6-Trichlorophenol	590 U
95-95-4	2,4,5-Trichlorophenol	590 U
91-58-7	2-Chloronaphthalene	120 U
88-74-4	2-Nitroaniline	590 U
131-11-3	Dimethylphthalate	120 U
208-96-8	Acenaphthylene	120 U
99-09-2	3-Nitroaniline	710 U
83-32-9	**Acenaphthene**	**2,300**
51-28-5	2,4-Dinitrophenol	1,200 U J
100-02-7	4-Nitrophenol	590 U
132-64-9	**Dibenzofuran**	**1,800**
606-20-2	2,6-Dinitrotoluene	590 U

FORM-1

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: RWB
Reported: 12/22/97

Sample No: 97424916
DILUTION-2

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:6
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	590 U
84-66-2	Diethylphthalate	120 U
7005-72-3	4-Chlorophenyl-phenylether	120 U
86-73-7	**Fluorene**	**2,800**
100-01-6	4-Nitroaniline	590 U
534-52-1	4,6-Dinitro-2-Methylphenol	1,200 U
86-30-6	N-Nitrosodiphenylamine	120 U
101-55-3	4-Bromophenyl-phenylether	120 U
118-74-1	Hexachlorobenzene	120 U
87-86-5	Pentachlorophenol	590 U J
85-01-8	**Phenanthrene**	**6,800**
86-74-8	**Carbazole**	**280**
120-12-7	**Anthracene**	**2,100**
84-74-2	Di-n-Butylphthalate	120 U
206-44-0	**Fluoranthene**	**4,300**
129-00-0	**Pyrene**	**4,100**
85-68-7	Butylbenzylphthalate	120 U
91-94-1	3,3'-Dichlorobenzidine	590 U
56-55-3	**Benzo(a)anthracene**	**1,300**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**180** ~~J~~ U
218-01-9	**Chrysene**	**1,500**
117-84-0	Di-n-Octyl phthalate	120 U
205-99-2	**Benzo(b)fluoranthene**	**670**
207-08-9	**Benzo(k)fluoranthene**	**920**
50-32-8	**Benzo(a)pyrene**	**940**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**600**
53-70-3	Dibenz(a,h)anthracene	120 U
191-24-2	**Benzo(g,h,i)perylene**	**670**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	63.4%	d5-Phenol	66.4%
2-Fluorobiphenyl	79.9%	2-Fluorophenol	76.8%
d14-p-Terphenyl	88.3%	2,4,6-Tribromophenol	60.0%
d4-1,2-Dichlorobenzene	60.7%	d4-2-Chlorophenol	64.6%

FORM-1

952 JME 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424916
DILUTION-2

Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: DMB
Reported: 12/22/97

Date Analyzed: 12/01/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	624-41-9	1-Butanol,_2-methyl-,_ace	9.47	SVOA	1,300 JN
2.	90-12-0	Naphthalene,_1-methyl-___	15.65	SVOA	970 JN
3.	---	Unknown_Cycloalkane_____	16.17	SVOA	510 JN
4.	---	Naphthalene,_Ethyl_Isomer	17.12	SVOA	940 JN
5.	---	Naphthalene,_Dimethyl_Iso	17.30	SVOA	1,100 JN
6.	---	Naphthalene,_Dimethyl_Iso	17.62	SVOA	800 JN
7.	---	Naphthalene,_Dimethyl_Iso	17.95	SVOA	360 JN
8.	2027-17-0	Naphthalene,_2-(1-methyle	18.97	SVOA	450 JN
9.	---	Naphthalene,_Trimethyl_Is	19.65	SVOA	1,100 JN
10.	---	Unknown_C13.H10.O_PNA____	20.82	SVOA	830 JN
11.	---	Unknown_C15.H10_PNA_____	25.03	SVOA	2,900 JN
12.	10544-50-0	Sulfur,_mol._(S8)_____	26.60	SVOA	2,600 JN
13.	---	Unknown_Alkyl_PNA_____	28.68	SVOA	3,800 JN
14.	---	Unknown_C17.H12_PNA_____	28.87	SVOA	1,900 JN
15.	---	Unknown_____	29.57	SVOA	960 JN
16.	---	Unknown_Alkane_____	33.43	SVOA	3,100 JN
17.	---	Unknown_____	34.02	SVOA	1,000 JN
18.	---	Unknown_____	35.13	SVOA	840 JN
19.	---	Unknown_____	36.32	SVOA	1,000 JN
20.	---	Unknown_____	39.37	SVOA	6,200 JN

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/22/97

Sample No: 97424916
REANALYSIS
WR-SD-SD048-1000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	**Benzyl Alcohol**	5.9 ~~MJ~~ N
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	70 J
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	660 J
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	360 J
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	360 J
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	65 J
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	1,300 J
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	1,100 J
606-20-2	2,6-Dinitrotoluene	99 U

FORM-1

1002
JMB 1/07/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized: MP
Reported: 12/22/97

Sample No: 97424916
REANALYSIS
WR-SD-SD048-1000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**1,500** J
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 UJ
85-01-8	**Phenanthrene**	**4,300** E
86-74-8	**Carbazole**	**200**
120-12-7	**Anthracene**	**1,100** ~~M~~ N
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**2,400** E
129-00-0	**Pyrene**	**2,600** E
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**1,200**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**150** ~~MB~~ NU
218-01-9	**Chrysene**	**870**
117-84-0	Di-n-Octyl phthalate	21 ~~U~~ UI
205-99-2	**Benzo(b)fluoranthene**	**900**
207-08-9	**Benzo(k)fluoranthene**	**630**
50-32-8	**Benzo(a)pyrene**	**920**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**540**
53-70-3	**Dibenz(a,h)anthracene**	**75** ~~M~~ N
191-24-2	**Benzo(g,h,i)perylene**	**480**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	69.6%	d5-Phenol	69.5%
2-Fluorobiphenyl	77.1%	2-Fluorophenol	83.0%
d14-p-Terphenyl	73.2%	2,4,6-Tribromophenol	51.5%
d4-1,2-Dichlorobenzene	60.0%	d4-2-Chlorophenol	68.7%

FORM-1

1003
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment
Data Release Authorized: GWB
Reported: 12/22/97

Sample No: 97424918
WR-SD-SD055-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 39.6%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	190 U
111-44-4	Bis-(2-Chloroethyl) Ether	390 U
95-57-8	2-Chlorophenol	190 U
541-73-1	1,3-Dichlorobenzene	190 U
106-46-7	1,4-Dichlorobenzene	190 U
100-51-6	Benzyl Alcohol	190 U
95-50-1	1,2-Dichlorobenzene	190 U
95-48-7	2-Methylphenol	190 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	190 U
106-44-5	4-Methylphenol	190 U
621-64-7	N-Nitroso-Di-N-Propylamine	390 U
67-72-1	Hexachloroethane	190 U
98-95-3	Nitrobenzene	190 U
78-59-1	Isophorone	190 U
88-75-5	2-Nitrophenol	970 U
105-67-9	2,4-Dimethylphenol	190 U
65-85-0	Benzoic Acid	1,900 U
111-91-1	bis(2-Chloroethoxy) Methane	190 U
120-83-2	2,4-Dichlorophenol	580 U
120-82-1	1,2,4-Trichlorobenzene	190 U
91-20-3	**Naphthalene**	**2,000**
106-47-8	4-Chloroaniline	580 U
87-68-3	Hexachlorobutadiene	190 U
59-50-7	4-Chloro-3-methylphenol	390 U
91-57-6	**2-Methylnaphthalene**	**1,400**
77-47-4	Hexachlorocyclopentadiene	970 U
88-06-2	2,4,6-Trichlorophenol	970 U
95-95-4	2,4,5-Trichlorophenol	970 U
91-58-7	2-Chloronaphthalene	190 U
88-74-4	2-Nitroaniline	970 U
131-11-3	Dimethylphthalate	190 U
208-96-8	**Acenaphthylene**	**610**
99-09-2	3-Nitroaniline	1,200 U
83-32-9	**Acenaphthene**	**7,900**
51-28-5	2,4-Dinitrophenol	1,900 U J
100-02-7	4-Nitrophenol	970 U
132-64-9	**Dibenzofuran**	**1,300**
606-20-2	2,6-Dinitrotoluene	970 U

FORM-1

1041
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment
Data Release Authorized: BWP
Reported: 12/22/97

Sample No: 97424918
WR-SD-SD055-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 39.6%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	970 U
84-66-2	Diethylphthalate	190 U
7005-72-3	4-Chlorophenyl-phenylether	190 U
86-73-7	**Fluorene**	**6,700**
100-01-6	4-Nitroaniline	970 U
534-52-1	4,6-Dinitro-2-Methylphenol	1,900 U
86-30-6	N-Nitrosodiphenylamine	190 U
101-55-3	4-Bromophenyl-phenylether	190 U
118-74-1	Hexachlorobenzene	190 U
87-86-5	Pentachlorophenol	970 U J
85-01-8	**Phenanthrene**	~~22,000 E~~ 46000 D
86-74-8	**Carbazole**	**370**
120-12-7	**Anthracene**	**6,200**
84-74-2	Di-n-Butylphthalate	190 U
206-44-0	**Fluoranthene**	~~17,000 E~~ 33000 D
129-00-0	**Pyrene**	~~20,000 E~~ 40000 D
85-68-7	Butylbenzylphthalate	190 U
91-94-1	3,3'-Dichlorobenzidine	970 U
56-55-3	**Benzo(a)anthracene**	**8,100**
117-81-7	bis(2-Ethylhexyl)phthalate	190 U
218-01-9	**Chrysene**	**9,300**
117-84-0	Di-n-Octyl phthalate	190 U
205-99-2	**Benzo(b)fluoranthene**	**8,000**
207-08-9	**Benzo(k)fluoranthene**	**6,800**
50-32-8	**Benzo(a)pyrene**	**11,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**8,900**
53-70-3	**Dibenz(a,h)anthracene**	**1,400** ~~J~~N
191-24-2	**Benzo(g,h,i)perylene**	**9,800**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	64.4%	d5-Phenol	73.6%
2-Fluorobiphenyl	91.2%	2-Fluorophenol	77.3%
d14-p-Terphenyl	99.6%	2,4,6-Tribromophenol	64.8%
d4-1,2-Dichlorobenzene	72.4%	d4-2-Chlorophenol	72.8%

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424918 WR-SD-SD055-0000A

Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: ONB
Reported: 12/22/97

Date Analyzed: 12/01/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	90-12-0	Naphthalene,_1-methyl-___	15.65	SVOA	5,300 JN
2.	--	Naphthalene,_Ethyl_Isomer	17.12	SVOA	4,400 JN
3.	--	Naphthalene,_Dimethyl_Iso	17.57	SVOA	12,000 JN
4.	--	Naphthalene,_Dimethyl_Iso	17.90	SVOA	3,500 JN
5.	--	Unknown_C13.H14_PNA_____	18.97	SVOA	3,600 JN
6.	--	Naphthalene,_Trimethyl_Is	19.65	SVOA	4,500 JN
7.	--	Naphthalene,_Trimethyl_Is	19.95	SVOA	4,800 JN
8.	--	Unknown_C13.H10.O_PNA____	20.82	SVOA	2,000 JN
9.	132-65-0	Dibenzothiophene_____	22.78	SVOA	14,000 JN
10.	--	Unknown_C15.H10_PNA_____	25.05	SVOA	16,000 JN
11.	10544-50-0	Sulfur,_mol._(S8)_____	26.62	SVOA	13,000 JN
12.	--	Unknown_____	27.30	SVOA	8,200 JN
13.	--	Unknown_C17.H12_PNA_____	28.68	SVOA	14,000 JN
14.	--	Unknown_C17.H12_PNA_____	29.33	SVOA	5,600 JN
15.	--	Unknown_C20.H12_PNA_____	34.83	SVOA	7,400 JN
16.	--	Unknown_C20.H12_PNA_____	35.28	SVOA	21,000 JN
17.	--	Unknown_____	37.55	SVOA	3,300 JN
18.	--	Unknown_C22.H14_PNA_____	38.62	SVOA	7,400 JN
19.	--	Unknown_C22.H12_PNA_____	39.12	SVOA	7,800 JN
20.	83-46-5	.beta.-Sitosterol_____	39.25	SVOA	7,900 JN

FORM-1-B

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424918
DILUTION

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:80
Percent Moisture: 39.6%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	1,600 U
111-44-4	Bis-(2-Chloroethyl) Ether	3,100 U
95-57-8	2-Chlorophenol	1,600 U
541-73-1	1,3-Dichlorobenzene	1,600 U
106-46-7	1,4-Dichlorobenzene	1,600 U
100-51-6	Benzyl Alcohol	1,600 U
95-50-1	1,2-Dichlorobenzene	1,600 U
95-48-7	2-Methylphenol	1,600 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1,600 U
106-44-5	4-Methylphenol	1,600 U
621-64-7	N-Nitroso-Di-N-Propylamine	3,100 U
67-72-1	Hexachloroethane	1,600 U
98-95-3	Nitrobenzene	1,600 U
78-59-1	Isophorone	1,600 U
88-75-5	2-Nitrophenol	7,800 U
105-67-9	2,4-Dimethylphenol	1,600 U
65-85-0	Benzoic Acid	16,000 U
111-91-1	bis(2-Chloroethoxy) Methane	1,600 U
120-83-2	2,4-Dichlorophenol	4,700 U
120-82-1	1,2,4-Trichlorobenzene	1,600 U
91-20-3	**Naphthalene**	**2,000**
106-47-8	4-Chloroaniline	4,700 U
87-68-3	Hexachlorobutadiene	1,600 U
59-50-7	4-Chloro-3-methylphenol	3,100 U
91-57-6	2-Methylnaphthalene	1,600 U
77-47-4	Hexachlorocyclopentadiene	7,800 U
88-06-2	2,4,6-Trichlorophenol	7,800 U
95-95-4	2,4,5-Trichlorophenol	7,800 U
91-58-7	2-Chloronaphthalene	1,600 U
88-74-4	2-Nitroaniline	7,800 U
131-11-3	Dimethylphthalate	1,600 U
208-96-8	Acenaphthylene	1,600 U
99-09-2	3-Nitroaniline	9,300 U
83-32-9	**Acenaphthene**	**9,700**
51-28-5	2,4-Dinitrophenol	16,000 U J
100-02-7	4-Nitrophenol	7,800 U
132-64-9	Dibenzofuran	1,600 U
606-20-2	2,6-Dinitrotoluene	7,800 U

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment
Data Release Authorized: GPS
Reported: 12/22/97

Sample No: 97424918
DILUTION
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:80
Percent Moisture: 39.6%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	7,800 U
84-66-2	Diethylphthalate	1,600 U
7005-72-3	4-Chlorophenyl-phenylether	1,600 U
86-73-7	**Fluorene**	**7,700**
100-01-6	4-Nitroaniline	7,800 U
534-52-1	4,6-Dinitro-2-Methylphenol	16,000 U
86-30-6	N-Nitrosodiphenylamine	1,600 U
101-55-3	4-Bromophenyl-phenylether	1,600 U
118-74-1	Hexachlorobenzene	1,600 U
87-86-5	Pentachlorophenol	7,800 U J
85-01-8	**Phenanthrene**	**46,000**
86-74-8	Carbazole	1,600 U
120-12-7	**Anthracene**	**10,000**
84-74-2	Di-n-Butylphthalate	1,600 U
206-44-0	**Fluoranthene**	**33,000**
129-00-0	**Pyrene**	**40,000**
85-68-7	Butylbenzylphthalate	1,600 U
91-94-1	3,3'-Dichlorobenzidine	7,800 U
56-55-3	**Benzo(a)anthracene**	**10,000**
117-81-7	bis(2-Ethylhexyl)phthalate	1,600 U
218-01-9	**Chrysene**	**12,000**
117-84-0	Di-n-Octyl phthalate	1,600 U
205-99-2	**Benzo(b)fluoranthene**	**8,400**
207-08-9	**Benzo(k)fluoranthene**	**7,400**
50-32-8	**Benzo(a)pyrene**	**12,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**8,200**
53-70-3	Dibenz(a,h)anthracene	1,600 U
191-24-2	**Benzo(g,h,i)perylene**	**9,900**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	D	d5-Phenol	D
2-Fluorobiphenyl	D	2-Fluorophenol	D
d14-p-Terphenyl	D	2,4,6-Tribromophenol	D
d4-1,2-Dichlorobenzene	D	d4-2-Chlorophenol	D

JMB 1/27/9.

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424918
DILUTION

Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project:
1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: AMP
Reported: 12/22/97

Date Analyzed: 12/01/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	90-12-0	Naphthalene,_1-methyl-___	15.65	SVOA	2,800 JN
2.	---	Naphthalene,_Dimethyl_Iso	17.30	SVOA	3,600 JN
3.	---	Naphthalene,_Dimethyl_Iso	17.57	SVOA	4,100 JN
4.	---	Unknown_C17.H12_PNA_____	28.67	SVOA	7,100 JN
5.	---	Unknown_Cycloalkane_____	33.80	SVOA	5,200 JN
6.	---	Unknown_C20.H12_PNA_____	34.78	SVOA	4,200 JN
7.	---	Unknown_C20.H12_PNA_____	35.23	SVOA	9,500 JN
8.	---	Unknown_C22.H12_PNA_____	39.05	SVOA	5,200 JN
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

FORM-1-B

1119

JMB 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: QWB
Reported: 12/22/97

Sample No: 97424919 WR-SD-SD053-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**26** J
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	**Benzyl Alcohol**	**9.4** ~~J~~ N
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**120** J
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**580** J
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**560** J
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**280** J
77-47-4	Hexachlorocyclopentadiene	98 U
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	**74** J
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**440** J
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	**Dibenzofuran**	**340** J
606-20-2	2,6-Dinitrotoluene	98 U

1130
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424919
WR-SD-SD053-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/27/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**460** J
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	~~1,700 E~~ ~~1300 D~~ 2400 DJ
86-74-8	**Carbazole**	**77**
120-12-7	**Anthracene**	**390**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	~~1,800 E~~ ~~1200 D~~ 3000 DJ
129-00-0	**Pyrene**	**1,500**
85-68-7	**Butylbenzylphthalate**	**28** ~~M~~ N
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**870**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**310** ~~B~~
218-01-9	**Chrysene**	**840**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**960**
207-08-9	**Benzo(k)fluoranthene**	**680**
50-32-8	**Benzo(a)pyrene**	**910**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**510**
53-70-3	**Dibenz(a,h)anthracene**	**100** ~~M~~ N
191-24-2	**Benzo(g,h,i)perylene**	**380**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	69.8%	d5-Phenol	66.3%
2-Fluorobiphenyl	76.2%	2-Fluorophenol	82.5%
d14-p-Terphenyl	62.4%	2,4,6-Tribromophenol	66.9%
d4-1,2-Dichlorobenzene	59.3%	d4-2-Chlorophenol	67.8%

1131
JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424919
WR-SD-SD053-0000A

Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: AWP
Reported: 12/22/97

Date Analyzed: 11/27/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown_Cycloalkane_____	8.58	SVOA	260 JN
2.	5343-96-4	2-Butanol,_3-methyl-,_ace	9.60	SVOA	250 JN
3.	90-12-0	Naphthalene,_1-methyl-___	15.82	SVOA	360 JN
4.	--	Unknown_Cycloalkane_____	16.30	SVOA	330 JN
5.	--	Naphthalene,_Dimethyl_Iso	17.45	SVOA	370 JN
6.	--	Naphthalene,_Dimethyl_Iso	17.75	SVOA	630 JN
7.	--	Naphthalene,_Dimethyl_Iso	18.08	SVOA	320 JN
8.	--	Unknown_Alkyl_PNA_____	20.72	SVOA	470 JN
9.	--	Unknown_Alkyl_PNA_____	22.43	SVOA	540 JN
10.	--	Unknown_C15.H10_PNA_____	25.28	SVOA	480 JN
11.	--	Unknown_____	26.08	SVOA	600 JN
12.	483-65-8	Phenanthrene,_1-methyl-7-	29.00	SVOA	1,400 JN
13.	--	Unknown_Acid_Ester_____	32.75	SVOA	580 JN
14.	54087-32-0	7H-Furo[3,2-g][1]benzopyr	33.33	SVOA	600 JN
15.	--	Unknown_Sterol_type_____	33.50	SVOA	470 JN
16.	--	Unknown_Alcohol_____	33.77	SVOA	2,100 JN
17.	--	Unknown_Sterol_type_____	35.48	SVOA	320 JN
18.	--	Unknown_____	36.17	SVOA	1,000 JN
19.	--	Unknown_Sterol_type_____	36.88	SVOA	290 JN
20.	--	Unknown_Sterol_type_____	38.35	SVOA	370 JN

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1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: BMB
Reported: 12/22/97

Sample No: 97424919
REANALYSIS WR-SD-SD053-0000A

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	**Benzyl Alcohol**	10 ~~J~~ N
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**120** J
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**490** J
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**580** J
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**280** J
77-47-4	Hexachlorocyclopentadiene	98 U
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	**66** J
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**440** J
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	**Dibenzofuran**	**340** J
606-20-2	2,6-Dinitrotoluene	98 U

1200

FORM-1

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424919
REANALYSIS
WR-SD-SD053-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**450** J
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U J
85-01-8	**Phenanthrene**	**1,300**
86-74-8	**Carbazole**	**80**
120-12-7	**Anthracene**	**340**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**1,200**
129-00-0	**Pyrene**	**1,400**
85-68-7	**Butylbenzylphthalate**	**21** ~~M~~ N
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**900**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**340** ~~B~~
218-01-9	**Chrysene**	**760**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**1,000**
207-08-9	**Benzo(k)fluoranthene**	**750**
50-32-8	**Benzo(a)pyrene**	**940**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**570**
53-70-3	**Dibenz(a,h)anthracene**	**130**
191-24-2	**Benzo(g,h,i)perylene**	**460**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	70.3%	d5-Phenol	66.7%
2-Fluorobiphenyl	74.9%	2-Fluorophenol	81.2%
d14-p-Terphenyl	71.9%	2,4,6-Tribromophenol	61.8%
d4-1,2-Dichlorobenzene	58.1%	d4-2-Chlorophenol	66.4%

FORM-1

1201 JME 1/27/9.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: CNB
Reported: 12/22/97

Sample No: 97424919
DILUTION-2

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/15/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg
108-95-2	Phenol	98 U J
111-44-4	Bis-(2-Chloroethyl) Ether	200 U J
95-57-8	2-Chlorophenol	98 U J
541-73-1	1,3-Dichlorobenzene	98 U J
106-46-7	1,4-Dichlorobenzene	98 U J
100-51-6	Benzyl Alcohol	98 U J
95-50-1	1,2-Dichlorobenzene	98 U J
95-48-7	2-Methylphenol	98 U J
108-60-1	2,2'-Oxybis(1-Chloropropane)	98 U J
106-44-5	**4-Methylphenol**	**110 J**
621-64-7	N-Nitroso-Di-N-Propylamine	200 U J
67-72-1	Hexachloroethane	98 U
98-95-3	Nitrobenzene	98 U
78-59-1	Isophorone	98 U
88-75-5	2-Nitrophenol	490 U
105-67-9	2,4-Dimethylphenol	98 U
65-85-0	Benzoic Acid	980 U
111-91-1	bis(2-Chloroethoxy) Methane	98 U
120-83-2	2,4-Dichlorophenol	290 U
120-82-1	1,2,4-Trichlorobenzene	98 U
91-20-3	**Naphthalene**	**950 J**
106-47-8	4-Chloroaniline	290 U J
87-68-3	Hexachlorobutadiene	98 U J
59-50-7	4-Chloro-3-methylphenol	200 U J
91-57-6	**2-Methylnaphthalene**	**270 J**
77-47-4	Hexachlorocyclopentadiene	490 U J
88-06-2	2,4,6-Trichlorophenol	490 U
95-95-4	2,4,5-Trichlorophenol	490 U
91-58-7	2-Chloronaphthalene	98 U
88-74-4	2-Nitroaniline	490 U
131-11-3	Dimethylphthalate	98 U
208-96-8	Acenaphthylene	98 U
99-09-2	3-Nitroaniline	590 U
83-32-9	**Acenaphthene**	**600 J**
51-28-5	2,4-Dinitrophenol	980 U J
100-02-7	4-Nitrophenol	490 U J
132-64-9	**Dibenzofuran**	**370 J**
606-20-2	2,6-Dinitrotoluene	490 U J

FORM-1

1240
JMB
1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment
Data Release Authorized: ONB
Reported: 12/22/97

Sample No: 97424919
DILUTION-2

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/15/97
Instrument: finn4
GPC Cleanup: NO

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 40.0%
pH: 7.7

CAS Number	Analyte	ug/kg	
121-14-2	2,4-Dinitrotoluene	490 U	J
84-66-2	Diethylphthalate	98 U	
7005-72-3	4-Chlorophenyl-phenylether	98 U	
86-73-7	**Fluorene**	**580**	J
100-01-6	4-Nitroaniline	490 U	J
534-52-1	4,6-Dinitro-2-Methylphenol	980 U	
86-30-6	N-Nitrosodiphenylamine	98 U	
101-55-3	4-Bromophenyl-phenylether	98 U	
118-74-1	Hexachlorobenzene	98 U	
87-86-5	Pentachlorophenol	490 U	
85-01-8	**Phenanthrene**	**2,400**	J
86-74-8	Carbazole	98 U	J
120-12-7	**Anthracene**	**450**	J
84-74-2	Di-n-Butylphthalate	98 U	J
206-44-0	**Fluoranthene**	**3,000**	J
129-00-0	**Pyrene**	**2,600**	J
85-68-7	Butylbenzylphthalate	98 U	J
91-94-1	3,3'-Dichlorobenzidine	490 U	J
56-55-3	**Benzo(a)anthracene**	**1,200**	J
117-81-7	**bis(2-Ethylhexyl)phthalate**	**420** ~~B~~	J UJ
218-01-9	**Chrysene**	**1,500**	J
117-84-0	Di-n-Octyl phthalate	98 U	J
205-99-2	**Benzo(b)fluoranthene**	**1,100**	J
207-08-9	**Benzo(k)fluoranthene**	**830**	J
50-32-8	**Benzo(a)pyrene**	**1,000**	J
193-39-5	**Indeno(1,2,3-cd)pyrene**	**560**	J
53-70-3	**Dibenz(a,h)anthracene**	**180**	~~M~~ NJ
191-24-2	**Benzo(g,h,i)perylene**	**650**	

JMB

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	72.6%	d5-Phenol	59.7%
2-Fluorobiphenyl	82.4%	2-Fluorophenol	72.3%
d14-p-Terphenyl	84.0%	2,4,6-Tribromophenol	64.1%
d4-1,2-Dichlorobenzene	60.2%	d4-2-Chlorophenol	67.3%

FORM-1

1241

00755

JMB 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424919
DILUTION-2

Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: AWB
Reported: 12/22/97

Date Analyzed: 12/15/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown_Siloxane	12.55	SVOA	280 JN
2.	---	Naphthalene,_Dimethyl_Iso	17.22	SVOA	260 JN
3.	---	Unknown_Cycloalkane	17.87	SVOA	260 JN
4.	---	Unknown	20.45	SVOA	350 JN
5.	---	Unknown_C15.H12_PNA	24.70	SVOA	750 JN
6.	---	Unknown_C15.H10_PNA	24.93	SVOA	770 JN
7.	---	Unknown	25.35	SVOA	670 JN
8.	---	Unknown	26.18	SVOA	830 JN
9.	10544-50-0	Sulfur,_mol._(S8)	26.48	SVOA	1,200 JN
10.	---	Unknown_C18.H18_PNA	28.58	SVOA	3,600 JN
11.	---	Unknown_C17.H12_PNA	28.85	SVOA	910 JN
12.	---	Unknown_PNA_+_C.E.	30.60	SVOA	1,000 JN
13.	---	Unknown_C18.H12_PNA	31.57	SVOA	410 JN
14.	54087-32-0	7H-Furo[3,2-g][1]benzopyr	32.90	SVOA	500 JN
15.	---	Unknown_Alkyl_PNA	33.10	SVOA	1,300 JN
16.	---	Unknown	35.88	SVOA	320 JN
17.	---	Unknown	36.23	SVOA	470 JN
18.	---	Unknown	37.20	SVOA	460 JN
19.	---	Unknown_Alkyl_PNA	37.65	SVOA	960 JN
20.	83-47-6	.gamma.-Sitosterol	39.15	SVOA	4,600 JN

FORM-1-B

1270
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/22/97

Sample No: 97424920
WR-SD-SD133-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**90**
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	96 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	57 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**110**
106-47-8	4-Chloroaniline	57 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	**2-Methylnaphthalene**	**86**
77-47-4	Hexachlorocyclopentadiene	96 U
88-06-2	2,4,6-Trichlorophenol	96 U
95-95-4	2,4,5-Trichlorophenol	96 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	96 U
131-11-3	**Dimethylphthalate**	**59 ~~U~~ N**
208-96-8	**Acenaphthylene**	**32**
99-09-2	3-Nitroaniline	110 U
83-32-9	**Acenaphthene**	**320**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	96 U
132-64-9	**Dibenzofuran**	**170**
606-20-2	2,6-Dinitrotoluene	96 U

1294

FORM-1

00757

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/22/97

Sample No: 97424920
WR-SD-SD133-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	96 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**340**
100-01-6	4-Nitroaniline	96 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	**Phenanthrene**	~~1,600 E~~ 2200 D
86-74-8	**Carbazole**	**110**
120-12-7	**Anthracene**	**320**
84-74-2	**Di-n-Butylphthalate**	**88**
206-44-0	**Fluoranthene**	~~1,500 E~~ 2900 D
129-00-0	**Pyrene**	~~2,000 E~~ 2400 D
85-68-7	**Butylbenzylphthalate**	**55**
91-94-1	3,3'-Dichlorobenzidine	96 U
56-55-3	**Benzo(a)anthracene**	**1,300**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**1,200** ~~B~~
218-01-9	**Chrysene**	**1,300**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**1,400**
207-08-9	**Benzo(k)fluoranthene**	**780**
50-32-8	**Benzo(a)pyrene**	**1,100**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**970**
53-70-3	**Dibenz(a,h)anthracene**	**290**
191-24-2	**Benzo(g,h,i)perylene**	**740**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	64.0%	d5-Phenol	64.4%
2-Fluorobiphenyl	79.0%	2-Fluorophenol	82.6%
d14-p-Terphenyl	84.6%	2,4,6-Tribromophenol	58.8%
d4-1,2-Dichlorobenzene	62.0%	d4-2-Chlorophenol	65.9%

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424920 WR-SD-SD133-0000A

Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: [illegible]
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Naphthalene,_Dimethyl_Iso	17.55	SVOA	740 JN
2.	--	Unknown	21.80	SVOA	2,500 JN
3.	3910-35-8	1H-Indene,_2,3-dihydro-1,	22.23	SVOA	1,600 JN
4.	--	Unknown	22.70	SVOA	930 JN
5.	--	Unknown	23.83	SVOA	1,000 JN
6.	--	Unknown	24.17	SVOA	850 JN
7.	--	Unknown_Alkyl_PNA	24.80	SVOA	1,400 JN
8.	--	Unknown	25.13	SVOA	1,200 JN
9.	--	Unknown	26.28	SVOA	890 JN
10.	--	Unknown_Alkyl_PNA_+_C.E._	26.62	SVOA	890 JN
11.	--	Unknown_PNA_+_C.E.	28.02	SVOA	740 JN
12.	--	Unknown_PNA_+_C.E.	28.70	SVOA	1,800 JN
13.	--	Unknown_PNA_+_C.E.	28.90	SVOA	2,400 JN
14.	--	Unknown_PNA	30.73	SVOA	690 JN
15.	--	2,4-Bis(dimethylbenzyl)ph	31.80	SVOA	1,500 JN
16.	--	Unknown	32.48	SVOA	1,200 JN
17.	--	Phosphoric_acid,_tri_Iso_	33.22	SVOA	1,100 JN
18.	--	Phosphoric_acid,_tri_Iso_	33.82	SVOA	930 JN
19.	--	Unknown	35.77	SVOA	1,800 JN
20.	--	Unknown	39.27	SVOA	1,200 JN

FORM-1-B

1328
JMB
1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment
Data Release Authorized: [illegible]
Reported: 12/22/97

Sample No: 97424920
DILUTION

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.9%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	96 U
111-44-4	Bis-(2-Chloroethyl) Ether	190 U
95-57-8	2-Chlorophenol	96 U
541-73-1	1,3-Dichlorobenzene	96 U
106-46-7	1,4-Dichlorobenzene	96 U
100-51-6	Benzyl Alcohol	96 U
95-50-1	1,2-Dichlorobenzene	96 U
95-48-7	2-Methylphenol	96 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	96 U
106-44-5	4-Methylphenol	96 U
621-64-7	N-Nitroso-Di-N-Propylamine	190 U
67-72-1	Hexachloroethane	96 U
98-95-3	Nitrobenzene	96 U
78-59-1	Isophorone	96 U
88-75-5	2-Nitrophenol	480 U
105-67-9	2,4-Dimethylphenol	96 U
65-85-0	Benzoic Acid	960 U
111-91-1	bis(2-Chloroethoxy) Methane	96 U
120-83-2	2,4-Dichlorophenol	290 U
120-82-1	1,2,4-Trichlorobenzene	96 U
91-20-3	**Naphthalene**	**97**
106-47-8	4-Chloroaniline	290 U
87-68-3	Hexachlorobutadiene	96 U
59-50-7	4-Chloro-3-methylphenol	190 U
91-57-6	2-Methylnaphthalene	96 U
77-47-4	Hexachlorocyclopentadiene	480 U
88-06-2	2,4,6-Trichlorophenol	480 U
95-95-4	2,4,5-Trichlorophenol	480 U
91-58-7	2-Chloronaphthalene	96 U
88-74-4	2-Nitroaniline	480 U
131-11-3	Dimethylphthalate	96 U
208-96-8	Acenaphthylene	96 U
99-09-2	3-Nitroaniline	570 U
83-32-9	**Acenaphthene**	**350**
51-28-5	2,4-Dinitrophenol	960 U J
100-02-7	4-Nitrophenol	480 U
132-64-9	**Dibenzofuran**	**150**
606-20-2	2,6-Dinitrotoluene	480 U

FORM-1

1352 JML 1/27

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment
Data Release Authorized: BHB
Reported: 12/22/97

Sample No: 97424920
DILUTION
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.9%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	480 U
84-66-2	Diethylphthalate	96 U
7005-72-3	4-Chlorophenyl-phenylether	96 U
86-73-7	**Fluorene**	**400**
100-01-6	4-Nitroaniline	480 U
534-52-1	4,6-Dinitro-2-Methylphenol	960 U
86-30-6	N-Nitrosodiphenylamine	96 U
101-55-3	4-Bromophenyl-phenylether	96 U
118-74-1	Hexachlorobenzene	96 U
87-86-5	Pentachlorophenol	480 U
85-01-8	**Phenanthrene**	**2,200**
86-74-8	**Carbazole**	**110**
120-12-7	**Anthracene**	**380**
84-74-2	Di-n-Butylphthalate	96 U
206-44-0	**Fluoranthene**	**2,900**
129-00-0	**Pyrene**	**2,400**
85-68-7	Butylbenzylphthalate	96 U
91-94-1	3,3'-Dichlorobenzidine	480 U
56-55-3	**Benzo(a)anthracene**	**1,300**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**1,400** B
218-01-9	**Chrysene**	**1,600**
117-84-0	Di-n-Octyl phthalate	96 U
205-99-2	**Benzo(b)fluoranthene**	**1,200**
207-08-9	**Benzo(k)fluoranthene**	**1,400**
50-32-8	**Benzo(a)pyrene**	**1,300**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**850**
53-70-3	**Dibenz(a,h)anthracene**	**160**
191-24-2	**Benzo(g,h,i)perylene**	**760**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	52.0%	d5-Phenol	57.3%
2-Fluorobiphenyl	76.0%	2-Fluorophenol	70.4%
d14-p-Terphenyl	83.8%	2,4,6-Tribromophenol	57.7%
d4-1,2-Dichlorobenzene	68.8%	d4-2-Chlorophenol	63.1%

FORM-1

1353 JME 1/27/9.

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424920
DILUTION

Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown_Alkyl_Stannane___	21.75	SVOA	1,100 JN
2.	3910-35-8	1H-Indene,_2,3-dihydro-1,	22.18	SVOA	710 JN
3.	---	Unknown_Aromatic_____	23.78	SVOA	670 JN
4.	---	Dibenzothiophene,_met_Iso	24.12	SVOA	500 JN
5.	---	Unknown_____	24.30	SVOA	440 JN
6.	---	Unknown_Alkyl_PNA_____	24.73	SVOA	820 JN
7.	---	Unknown_____	25.08	SVOA	700 JN
8.	---	Unknown_____	25.40	SVOA	1,000 JN
9.	---	Unknown_____	26.23	SVOA	600 JN
10.	---	Unknown_PNA_+_C.E._____	26.53	SVOA	610 JN
11.	---	Unknown_____	27.95	SVOA	760 JN
12.	243-17-4	Benzofluorene_Iso_____	28.62	SVOA	1,400 JN
13.	---	Unknown_PNA_____	30.65	SVOA	650 JN
14.	---	Unknown_____	30.82	SVOA	540 JN
15.	---	Unknown_____	32.42	SVOA	940 JN
16.	---	Phosphoric_acid,_tr_Iso__	33.15	SVOA	1,000 JN
17.	---	Phosphoric_acid,_tr_Iso__	33.73	SVOA	770 JN
18.	---	Unknown_____	34.72	SVOA	810 JN
19.	---	Unknown_____	36.98	SVOA	510 JN
20.	---	Unknown_____	39.18	SVOA	830 JN

FORM-1-B

1377
JMB
1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment
Data Release Authorized: CWB
Reported: 12/22/97

Sample No: 97424921 WR-SD-SD127-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 51.2%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**22**
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**80**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	97 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**58**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**24**
77-47-4	Hexachlorocyclopentadiene	97 U
88-06-2	2,4,6-Trichlorophenol	97 U
95-95-4	2,4,5-Trichlorophenol	97 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	97 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**40**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	97 U
132-64-9	**Dibenzofuran**	**27**
606-20-2	2,6-Dinitrotoluene	97 U

FORM-1

JMB 1/27/98
1401

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424921
WR-SD-SD127-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 51.2%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	97 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**48**
100-01-6	4-Nitroaniline	97 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	97 U
85-01-8	**Phenanthrene**	**260**
86-74-8	**Carbazole**	**19 J**
120-12-7	**Anthracene**	**67**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**280**
129-00-0	**Pyrene**	**320**
85-68-7	**Butylbenzylphthalate**	**33**
91-94-1	3,3'-Dichlorobenzidine	97 U
56-55-3	**Benzo(a)anthracene**	**140**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**770**
218-01-9	**Chrysene**	**170**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**130**
207-08-9	**Benzo(k)fluoranthene**	**90**
50-32-8	**Benzo(a)pyrene**	**120**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**86**
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	**Benzo(g,h,i)perylene**	**79**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	73.2%	d5-Phenol	63.8%
2-Fluorobiphenyl	72.4%	2-Fluorophenol	80.1%
d14-p-Terphenyl	79.7%	2,4,6-Tribromophenol	65.8%
d4-1,2-Dichlorobenzene	61.3%	d4-2-Chlorophenol	65.4%

1402 JME 1/27/99

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424921 WR-SD- SD127-0000A

Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: AWP
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	9.48	SVOA	1,400 JN
2.	--	Unknown_Alkyl_Stannane	21.77	SVOA	740 JN
3.	--	Unknown	22.13	SVOA	300 JN
4.	--	Unknown	24.33	SVOA	340 JN
5.	--	Unknown	25.28	SVOA	470 JN
6.	57-10-3	Hexadecanoic_acid	25.52	SVOA	360 JN
7.	--	Unknown	27.27	SVOA	470 JN
8.	--	Unknown	27.68	SVOA	290 JN
9.	--	Unknown	28.68	SVOA	750 JN
10.	--	Unknown_PNA_+_C.E.	28.87	SVOA	340 JN
11.	--	Unknown	30.72	SVOA	380 JN
12.	--	Unknown	33.02	SVOA	580 JN
13.	--	Unknown	33.23	SVOA	680 JN
14.	--	Unknown	34.77	SVOA	840 JN
15.	--	Unknown	36.57	SVOA	300 JN
16.	--	Unknown	37.13	SVOA	500 JN
17.	--	Unknown	37.62	SVOA	310 JN
18.	--	Unknown	37.97	SVOA	730 JN
19.	83-47-6	.gamma.-Sitosterol	39.28	SVOA	1,000 JN
20.	--	Unknown	39.40	SVOA	910 JN

1432
JMB 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment
Data Release Authorized: [illegible]
Reported: 12/22/97

Sample No: 97424923
WR-SD-SD122-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**120** J
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	96 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**230**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**51**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	2-Methylnaphthalene	19 U
77-47-4	Hexachlorocyclopentadiene	96 U
88-06-2	2,4,6-Trichlorophenol	96 U
95-95-4	2,4,5-Trichlorophenol	96 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	96 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**22**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	96 U
132-64-9	**Dibenzofuran**	**20**
606-20-2	2,6-Dinitrotoluene	96 U

FORM-1

1456 JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment
Data Release Authorized: ONP
Reported: 12/22/97

Sample No: 97424923 WR-SD-SD122-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	96 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**31**
100-01-6	4-Nitroaniline	96 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	**Phenanthrene**	**150**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**43**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**180**
129-00-0	**Pyrene**	**200**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	96 U
56-55-3	**Benzo(a)anthracene**	**60**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**390** ~~B~~
218-01-9	**Chrysene**	**98**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**77**
207-08-9	**Benzo(k)fluoranthene**	**64**
50-32-8	**Benzo(a)pyrene**	**56**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**49**
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	**Benzo(g,h,i)perylene**	**43**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	73.5%	d5-Phenol	64.7%
2-Fluorobiphenyl	71.6%	2-Fluorophenol	77.2%
d14-p-Terphenyl	72.8%	2,4,6-Tribromophenol	67.7%
d4-1,2-Dichlorobenzene	56.1%	d4-2-Chlorophenol	64.9%

FORM-1

1457
JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424923
WR-SD-SD122-0000A

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: ANB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	9.47	SVOA	1,300 JN
2.	--	Unknown_Phenol	20.50	SVOA	280 JN
3.	--	Unknown_Alkyl_Stannane	21.77	SVOA	360 JN
4.	--	Unknown	23.83	SVOA	310 JN
5.	--	Unknown	24.32	SVOA	250 JN
6.	--	Unknown	24.72	SVOA	270 JN
7.	57-10-3	Hexadecanoic_acid	25.47	SVOA	490 JN
8.	--	Unknown	25.78	SVOA	340 JN
9.	--	Unknown	27.25	SVOA	300 JN
10.	--	Unknown	27.63	SVOA	300 JN
11.	--	Unknown	28.67	SVOA	580 JN
12.	--	Unknown	30.72	SVOA	270 JN
13.	--	Unknown	31.57	SVOA	240 JN
14.	--	Unknown	33.00	SVOA	350 JN
15.	--	Unknown	33.22	SVOA	420 JN
16.	--	Unknown	33.45	SVOA	1,300 JN
17.	--	Unknown	34.75	SVOA	300 JN
18.	--	Unknown	37.28	SVOA	230 JN
19.	--	Unknown_Sterol	39.27	SVOA	1,200 JN
20.	--	Unknown	39.38	SVOA	1,000 JN

FORM-1-B

1484
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424923
REANALYSIS
WR-SD-SD122-0000A

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**20**
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**110** J
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	96 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**220**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**50**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	2-Methylnaphthalene	19 U
77-47-4	Hexachlorocyclopentadiene	96 U
88-06-2	2,4,6-Trichlorophenol	96 U
95-95-4	2,4,5-Trichlorophenol	96 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	96 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**22**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	96 U
132-64-9	Dibenzofuran	19 U
606-20-2	2,6-Dinitrotoluene	96 U

1507
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424923
REANALYSIS
WR-SD-SD122-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	96 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**28**
100-01-6	4-Nitroaniline	96 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	**Phenanthrene**	**170**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**54**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**190**
129-00-0	**Pyrene**	**190**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	96 U
56-55-3	**Benzo(a)anthracene**	**68**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**420** B
218-01-9	**Chrysene**	**83**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**63**
207-08-9	**Benzo(k)fluoranthene**	**68**
50-32-8	**Benzo(a)pyrene**	**74**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**48**
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	**Benzo(g,h,i)perylene**	**41**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	69.0%	d5-Phenol	63.1%
2-Fluorobiphenyl	72.4%	2-Fluorophenol	72.2%
d14-p-Terphenyl	74.6%	2,4,6-Tribromophenol	64.1%
d4-1,2-Dichlorobenzene	55.6%	d4-2-Chlorophenol	65.1%

1508 JME 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424923
~~DILUTION~~ REANALYSIS

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: CWB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	9.48	SVOA	1,400 JN
2.	---	Unknown_Alkyl_Stannane	21.77	SVOA	260 JN
3.	---	Unknown	23.85	SVOA	260 JN
4.	---	Unknown	24.33	SVOA	250 JN
5.	---	Unknown	24.73	SVOA	210 JN
6.	638-53-9	Tridecanoic_acid	25.48	SVOA	350 JN
7.	---	Unknown	26.27	SVOA	210 JN
8.	---	Unknown	27.25	SVOA	290 JN
9.	---	Unknown	27.65	SVOA	290 JN
10.	---	Unknown	28.68	SVOA	530 JN
11.	---	Unknown	30.72	SVOA	340 JN
12.	---	Unknown	33.02	SVOA	390 JN
13.	---	Unknown	33.23	SVOA	490 JN
14.	---	Unknown_Aldehyde	34.77	SVOA	400 JN
15.	---	Unknown_Aldehyde	36.57	SVOA	290 JN
16.	---	Unknown	36.88	SVOA	210 JN
17.	---	Unknown	37.12	SVOA	290 JN
18.	---	Unknown	37.30	SVOA	240 JN
19.	83-46-5	.beta.-Sitosterol	39.27	SVOA	1,100 JN
20.	---	Unknown	39.38	SVOA	850 JN

FORM-1-B

1537 JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424925
WR-SD-SD125-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn8
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.1%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**27**
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**97** J
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**51**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**20**
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**38**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	**29**
606-20-2	2,6-Dinitrotoluene	99 U

1561
JMB 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment
Data Release Authorized: MB
Reported: 12/22/97

Sample No: 97424925
WR- SD- SD125-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/02/97
Instrument: finn8
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.1%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**51**
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	**Phenanthrene**	**310**
86-74-8	Carbazole	20 U
120-12-7	**Anthracene**	**74**
84-74-2	**Di-n-Butylphthalate**	**22**
206-44-0	**Fluoranthene**	**320**
129-00-0	**Pyrene**	**360**
85-68-7	**Butylbenzylphthalate**	**24**
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**150**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**680** ~~B~~
218-01-9	**Chrysene**	**200**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**210**
207-08-9	**Benzo(k)fluoranthene**	**110**
50-32-8	**Benzo(a)pyrene**	**150**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**120**
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	**Benzo(g,h,i)perylene**	**87**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	70.8%	d5-Phenol	70.2%
2-Fluorobiphenyl	69.7%	2-Fluorophenol	70.7%
d14-p-Terphenyl	81.2%	2,4,6-Tribromophenol	92.9%
d4-1,2-Dichlorobenzene	59.8%	d4-2-Chlorophenol	68.5%

1562

FORM-1

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424925
WR-SD-SD125-0000A

Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: BNB
Reported: 12/22/97

Date Analyzed: 12/02/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.83	SVOA	690 J N
2.	--	Unknown_Alkyl_Stannane	21.07	SVOA	680 J N
3.	1002-84-2	Pentadecanoic_acid	23.05	SVOA	340 JN
4.	--	Unknown	23.63	SVOA	370 J N
5.	--	Unknown	24.22	SVOA	350 J N
6.	57-10-3	Hexadecanoic_acid	24.87	SVOA	770 JN
7.	10544-50-0	Sulfur,_mol._(S8)	25.77	SVOA	560 JN
8.	--	Unknown	26.97	SVOA	930 J N
9.	--	Unknown	27.90	SVOA	700 J N
10.	--	Unknown_PNA	28.17	SVOA	410 J N
11.	--	Unknown	32.22	SVOA	400 J N
12.	--	Unknown	32.43	SVOA	610 J N
13.	--	Unknown_Aldehyde	34.03	SVOA	820 J N
14.	--	Unknown	34.35	SVOA	510 J N
15.	80-97-7	Cholestanol	36.80	SVOA	620 JN
16.	--	Unknown	36.90	SVOA	450 J N
17.	--	Unknown	38.33	SVOA	3,200 J N
18.	--	Unknown	38.68	SVOA	1,600 J N
19.	--	Unknown	38.88	SVOA	920 J N
20.	1058-61-3	Stigmast-4-en-3-one	39.25	SVOA	420 JN

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/22/97

Sample No: 97424925
REANALYSIS
WR-SD-SD125-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.1%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**28**
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**87** J
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**200 J**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**71**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**24**
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**44**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	**33**
606-20-2	2,6-Dinitrotoluene	99 U

1614

FORM-1

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment
Data Release Authorized: BVB
Reported: 12/22/97

Sample No: 97424925
REANALYSIS
WR-SD-SD125-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: finn4
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.1%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**49**
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	**Phenanthrene**	**290**
86-74-8	**Carbazole**	**20**
120-12-7	**Anthracene**	**74**
84-74-2	**Di-n-Butylphthalate**	**24**
206-44-0	**Fluoranthene**	**300**
129-00-0	**Pyrene**	**330**
85-68-7	**Butylbenzylphthalate**	**21 ~~M~~ N**
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**140**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**640 ~~B~~**
218-01-9	**Chrysene**	**150**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**100**
207-08-9	**Benzo(k)fluoranthene**	**150**
50-32-8	**Benzo(a)pyrene**	**130**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**110**
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	**Benzo(g,h,i)perylene**	**86**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	79.8%	d5-Phenol	59.6%
2-Fluorobiphenyl	76.4%	2-Fluorophenol	75.8%
d14-p-Terphenyl	78.7%	2,4,6-Tribromophenol	70.0%
d4-1,2-Dichlorobenzene	61.2%	d4-2-Chlorophenol	61.4%

1615
JMB 1/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424925
REANALYSIS ~~DILUTION~~ WR-SD-SD125-0000A

Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	79-34-5	Ethane,_1,1,2,2-tetrachlo	6.87	SVOA	220 ~~JNB~~ R
2.	---	Unknown	9.43	SVOA	660 J N
3.	---	Unknown_Alkyl_Stannane	21.77	SVOA	510 J N
4.	---	Unknown	23.70	SVOA	270 J N
5.	---	Unknown	24.33	SVOA	400 J N
6.	---	Unknown	25.27	SVOA	640 J N
7.	---	Unknown	25.80	SVOA	310 J N
8.	---	Unknown	27.27	SVOA	520 J N
9.	---	Unknown	27.67	SVOA	530 J N
10.	---	Unknown	28.68	SVOA	680 J N
11.	---	Unknown_PNA_+_C.E.	28.87	SVOA	500 J N
12.	---	Unknown	30.68	SVOA	380 J N
13.	---	Unknown	33.02	SVOA	460 J N
14.	---	Unknown	33.23	SVOA	600 J N
15.	---	Unknown_Aldehyde	34.77	SVOA	590 J N
16.	---	Unknown	36.50	SVOA	240 J N
17.	---	Unknown	37.77	SVOA	270 J N
18.	---	Unknown	38.02	SVOA	380 J N
19.	83-46-5	.beta.-Sitosterol	39.27	SVOA	730 JN
20.	---	Unknown	39.40	SVOA	940 J N

FORM-1-B

1647
JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/22/97

Sample No: 97424927
WR-SD-SD116-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.3%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**69**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	Naphthalene	20 U
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	2-Methylnaphthalene	20 U
77-47-4	Hexachlorocyclopentadiene	98 U
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	Acenaphthene	20 U
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	Dibenzofuran	20 U
606-20-2	2,6-Dinitrotoluene	98 U

JMB 1/22/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment
Data Release Authorized:
Reported: 12/22/97

Sample No: 97424927
WR-SD-SD116-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.3%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	Fluorene	20 U
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U J
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	**34**
86-74-8	Carbazole	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**44**
129-00-0	**Pyrene**	**48**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	Benzo(a)anthracene	20 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**82** ~~B~~ U
218-01-9	**Chrysene**	**23**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**20**
207-08-9	Benzo(k)fluoranthene	20 U
50-32-8	Benzo(a)pyrene	20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20 U
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	Benzo(g,h,i)perylene	20 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	58.5%	d5-Phenol	62.0%
2-Fluorobiphenyl	62.7%	2-Fluorophenol	59.8%
d14-p-Terphenyl	72.6%	2,4,6-Tribromophenol	75.5%
d4-1,2-Dichlorobenzene	44.0%	d4-2-Chlorophenol	60.2%

FORM-1

1672

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424927 WR-SD-SD116-0000A

Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: GMB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.48	SVOA	750 J N
2.	--	Unknown	18.49	SVOA	530 J N
3.	--	Unknown_Organic_Acid	18.64	SVOA	770 J N
4.	--	Unknown	19.11	SVOA	1,400 J N
5.	--	Unknown_Aromatic	20.97	SVOA	3,100 J N
6.	--	Unknown	23.85	SVOA	460 J N
7.	--	Unknown_Sterol_type	26.31	SVOA	330 J N
8.	--	Unknown_Sterol_type	26.56	SVOA	520 J N
9.	--	Unknown_Sterol_type	26.62	SVOA	400 J N
10.	--	Unknown_Sterol_type	27.45	SVOA	460 J N
11.	--	Unknown_Sterol_type	27.91	SVOA	3,600 J N
12.	--	Unknown_Sterol_type	27.99	SVOA	1,900 J N
13.	--	Unknown	28.12	SVOA	1,600 J N
14.	--	Unknown	28.19	SVOA	830 J N
15.	--	Unknown	28.32	SVOA	1,500 J N
16.	--	Unknown	28.48	SVOA	2,200 J N
17.	--	Unknown	28.68	SVOA	960 J N
18.	--	Unknown	28.87	SVOA	350 J N
19.	--	Unknown_Sterol_type	28.99	SVOA	1,000 J N
20.	--	Unknown	29.35	SVOA	460 J N

FORM-1-B

JMB 1/27/

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/22/97

Sample No: 97424929 WR-SD-SD106-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.3

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**52**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	97 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**21**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	2-Methylnaphthalene	19 U
77-47-4	Hexachlorocyclopentadiene	97 U
88-06-2	2,4,6-Trichlorophenol	97 U
95-95-4	2,4,5-Trichlorophenol	97 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	97 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	Acenaphthene	19 U
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	97 U
132-64-9	Dibenzofuran	19 U
606-20-2	2,6-Dinitrotoluene	97 U

FORM-1

JMB 1/27/98
1710

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment
Data Release Authorized: CWB
Reported: 12/22/97

Sample No: 97424929 WR-SD-SD106-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.3

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	97 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**20**
100-01-6	4-Nitroaniline	97 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U J
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	97 U
85-01-8	**Phenanthrene**	**120**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**22**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**180**
129-00-0	**Pyrene**	**170**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	97 U
56-55-3	**Benzo(a)anthracene**	**60**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**260** ~~B~~
218-01-9	**Chrysene**	**93**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**68**
207-08-9	**Benzo(k)fluoranthene**	**74**
50-32-8	**Benzo(a)pyrene**	**67**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**39**
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	**Benzo(g,h,i)perylene**	**45**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	57.0%	d5-Phenol	65.3%
2-Fluorobiphenyl	62.6%	2-Fluorophenol	59.0%
d14-p-Terphenyl	72.1%	2,4,6-Tribromophenol	74.3%
d4-1,2-Dichlorobenzene	46.0%	d4-2-Chlorophenol	60.3%

FORM-1

1711 JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424929 WR-SD-SD106-0000A

Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: BNB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.47	SVOA	520 JN
2.	--	Unknown_Organic_Acid	18.49	SVOA	380 JN
3.	--	Unknown_Organic_Acid	18.63	SVOA	540 JN
4.	--	Unknown_Aromatic	20.00	SVOA	320 JN
5.	--	Unknown_Aromatic	20.95	SVOA	480 JN
6.	--	Unknown	23.86	SVOA	490 JN
7.	--	Unknown_Aldehyde	24.59	SVOA	550 JN
8.	--	Unknown_C20.H12_PNA	25.45	SVOA	340 JN
9.	--	Unknown	26.11	SVOA	580 JN
10.	--	Unknown	26.29	SVOA	660 JN
11.	--	Unknown_Sterol_type	26.56	SVOA	400 JN
12.	--	Unknown_Sterol_type	26.63	SVOA	440 JN
13.	--	Unknown_Sterol_type	27.98	SVOA	2,100 JN
14.	--	Unknown	28.13	SVOA	1,800 JN
15.	--	Unknown	28.19	SVOA	840 JN
16.	--	Unknown	28.32	SVOA	1,400 JN
17.	--	Unknown	28.48	SVOA	2,100 JN
18.	--	Unknown	28.68	SVOA	900 JN
19.	--	Unknown	28.87	SVOA	350 JN
20.	--	Unknown_Sterol_type	28.99	SVOA	670 JN

FORM-1-B

JMB 1734
1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199L
LIMS ID: 97-19627
Matrix: Sediment
Data Release Authorized: DHG
Reported: 12/22/97

Sample No: 97424931
WR-SD-SD102-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 39.8%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**210**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**140**
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**180**
77-47-4	Hexachlorocyclopentadiene	98 U
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	31 ~~M~~N
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**120**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	Dibenzofuran	20 U
606-20-2	2,6-Dinitrotoluene	98 U

1757

FORM-1

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JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199L
LIMS ID: 97-19627
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/22/97

Sample No: 97424931
WR-SD-SD102-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 39.8%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**190**
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U J
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	**820**
86-74-8	**Carbazole**	**28** ~~M~~ N
120-12-7	**Anthracene**	**150**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**440**
129-00-0	**Pyrene**	**790**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**230**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**31** ~~B~~ U
218-01-9	**Chrysene**	**340**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**160**
207-08-9	**Benzo(k)fluoranthene**	**110**
50-32-8	**Benzo(a)pyrene**	**190**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**100**
53-70-3	**Dibenz(a,h)anthracene**	**31**
191-24-2	**Benzo(g,h,i)perylene**	**140**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	46.5%	d5-Phenol	54.8%
2-Fluorobiphenyl	52.5%	2-Fluorophenol	50.9%
d14-p-Terphenyl	64.8%	2,4,6-Tribromophenol	53.8%
d4-1,2-Dichlorobenzene	42.8%	d4-2-Chlorophenol	50.7%

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424931
WR-SD-SD102-0000A

Lab Sample ID: U199L
LIMS ID: 97-19627
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: AWB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.48	SVOA	970 JN
2.	--	Unknown_Alkyl_Benzene	10.50	SVOA	730 JN
3.	--	Unknown_Cycloalkane	11.53	SVOA	720 JN
4.	--	Unknown	12.38	SVOA	750 JN
5.	90-12-0	Naphthalene,_1-methyl-	12.56	SVOA	2,300 JN
6.	--	Unknown	13.30	SVOA	650 JN
7.	--	Naphthalene,_Dimethyl_Iso	13.78	SVOA	2,000 JN
8.	--	Naphthalene,_Dimethyl_Iso	13.82	SVOA	950 JN
9.	--	Naphthalene,_Trimethyl_Is	14.66	SVOA	740 JN
10.	--	Naphthalene,_Trimethyl_Is	15.12	SVOA	840 JN
11.	--	Naphthalene,_Trimethyl_Is	15.15	SVOA	970 JN
12.	--	Naphthalene,_Trimethyl_Is	15.29	SVOA	790 JN
13.	--	Unknown_PNA	15.72	SVOA	720 JN
14.	--	Unknown_PNA	16.72	SVOA	1,100 JN
15.	--	Unknown	16.81	SVOA	870 JN
16.	--	Unknown_Aromatic	16.98	SVOA	750 JN
17.	--	Unknown_Aromatic	17.20	SVOA	710 JN
18.	--	Unknown_Aromatic	17.75	SVOA	660 JN
19.	--	Unknown_C15.H12_PNA	18.50	SVOA	740 JN
20.	--	Unknown_C16.H14_PNA	19.59	SVOA	770 JN

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment
Data Release Authorized: DMB
Reported: 12/22/97

Sample No: 97424933 WR-SD-SD096-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 53.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.6%
pH: 7.2

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**150**
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	94 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	56 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**130**
106-47-8	4-Chloroaniline	56 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	**2-Methylnaphthalene**	**41**
77-47-4	Hexachlorocyclopentadiene	94 U
88-06-2	2,4,6-Trichlorophenol	94 U
95-95-4	2,4,5-Trichlorophenol	94 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	94 U
131-11-3	Dimethylphthalate	19 U
208-96-8	**Acenaphthylene**	**40**
99-09-2	3-Nitroaniline	110 U
83-32-9	**Acenaphthene**	**79**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	94 U
132-64-9	**Dibenzofuran**	**24**
606-20-2	2,6-Dinitrotoluene	94 U

1808

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/22/97

Sample No: 97424933
WR-SD-SD096-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 53.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.6%
pH: 7.2

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	94 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**61**
100-01-6	4-Nitroaniline	94 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U J
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	94 U
85-01-8	**Phenanthrene**	**360**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**56**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**490**
129-00-0	**Pyrene**	**560**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	94 U
56-55-3	**Benzo(a)anthracene**	**180**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**73** ~~J~~ U
218-01-9	**Chrysene**	**230**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**160**
207-08-9	**Benzo(k)fluoranthene**	**170**
50-32-8	**Benzo(a)pyrene**	**180**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**95**
53-70-3	**Dibenz(a,h)anthracene**	**40**
191-24-2	**Benzo(g,h,i)perylene**	**130**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	53.1%	d5-Phenol	57.7%
2-Fluorobiphenyl	57.4%	2-Fluorophenol	54.7%
d14-p-Terphenyl	72.1%	2,4,6-Tribromophenol	73.3%
d4-1,2-Dichlorobenzene	45.8%	d4-2-Chlorophenol	55.0%

FORM-1

1809
JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424933
WR-SD-SD096-0000A

Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: GWB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown_Aromatic	12.04	SVOA	150 JN
2.	90-12-0	Naphthalene,_1-methyl-	12.54	SVOA	99 JN
3.	--	Unknown_Aromatic	12.96	SVOA	78 JN
4.	--	Unknown	13.28	SVOA	88 JN
5.	--	Unknown	14.91	SVOA	130 JN
6.	--	Unknown_Aromatic	15.78	SVOA	81 JN
7.	--	Unknown_Aromatic	16.71	SVOA	76 JN
8.	--	Unknown_PNA_+_C.E.	18.46	SVOA	170 JN
9.	--	Unknown_Organic_Acid	18.62	SVOA	200 JN
10.	--	Unknown	19.11	SVOA	170 JN
11.	--	Unknown_Aromatic	20.02	SVOA	380 JN
12.	--	Unknown_Aromatic	20.96	SVOA	610 JN
13.	--	Unknown_Aldehyde	24.59	SVOA	670 JN
14.	--	Unknown_C20.H12_PNA	25.46	SVOA	620 JN
15.	--	Unknown	25.72	SVOA	360 JN
16.	--	Unknown_Sterol_type	27.98	SVOA	740 JN
17.	--	Unknown	28.32	SVOA	490 JN
18.	--	Unknown_Aromatic	28.48	SVOA	1,600 JN
19.	--	Unknown	28.69	SVOA	530 JN
20.	--	Unknown_Sterol_type	29.00	SVOA	650 JN

1835

FORM-1-B

JMB
1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment
Data Release Authorized: [illegible]
Reported: 12/22/97

Sample No: 97424935 WR-SD-SD057-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.1%
pH: 7.7

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**85**
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**240**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**230**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**60**
77-47-4	Hexachlorocyclopentadiene	99 U
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	**87**
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**410**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	**32**
606-20-2	2,6-Dinitrotoluene	99 U

1859 JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/22/97

Sample No: 97424935
WR-SD-SD057-0000A
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.1%
pH: 7.7

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**130**
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U J
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	**Phenanthrene**	~~2,800 E~~ 2300 D
86-74-8	**Carbazole**	**34**
120-12-7	**Anthracene**	**290**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	~~4,500 E~~ 4200 D
129-00-0	**Pyrene**	~~5,400 E~~ 5600 D
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**950**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**31** ~~J~~ U
218-01-9	**Chrysene**	**1,400**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**1,200**
207-08-9	**Benzo(k)fluoranthene**	**1,000**
50-32-8	**Benzo(a)pyrene**	~~2,000 E~~ 1200 D
193-39-5	**Indeno(1,2,3-cd)pyrene**	**1,400**
53-70-3	**Dibenz(a,h)anthracene**	**200**
191-24-2	**Benzo(g,h,i)perylene**	~~2,000 E~~ 1800 D

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	56.8%	d5-Phenol	61.8%
2-Fluorobiphenyl	62.6%	2-Fluorophenol	57.8%
d14-p-Terphenyl	75.9%	2,4,6-Tribromophenol	81.6%
d4-1,2-Dichlorobenzene	48.8%	d4-2-Chlorophenol	58.5%

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424935
WR-SD-SD057-0000A

Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: ARB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.46	SVOA	190 J N
2.	--	Unknown_Aromatic	18.65	SVOA	300 J N
3.	--	Unknown_C16.H10_PNA	20.04	SVOA	350 J N
4.	--	Unknown	20.15	SVOA	180 J N
5.	--	Unknown_Aromatic	20.95	SVOA	210 J N
6.	--	Unknown_C18.H10_PNA	22.33	SVOA	560 J N
7.	--	Unknown_PNA	22.95	SVOA	470 J N
8.	--	Unknown	24.46	SVOA	400 J N
9.	--	Unknown_Aldehyde	24.59	SVOA	490 J N
10.	--	Unknown_C20.H12_PNA	24.94	SVOA	260 J N
11.	--	Unknown_C20.H12_PNA	25.24	SVOA	890 J N
12.	--	Unknown_C20.H12_PNA	25.46	SVOA	620 J N
13.	--	Unknown_Aldehyde	25.72	SVOA	250 J N
14.	--	Unknown_Sterol_type	27.88	SVOA	400 J N
15.	--	Unknown_C22.H12_PNA	27.98	SVOA	830 J N
16.	--	Unknown	28.12	SVOA	350 J N
17.	--	Unknown	28.31	SVOA	210 J N
18.	--	Unknown	28.47	SVOA	470 J N
19.	--	Unknown	28.68	SVOA	310 J N
20.	--	Unknown_Sterol_type	28.98	SVOA	180 J N

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment
Data Release Authorized: CWB
Reported: 12/22/97

Sample No: 97424935
DILUTION

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 37.1%
pH: 7.7

CAS Number	Analyte	ug/kg
108-95-2	Phenol	99 U
111-44-4	Bis-(2-Chloroethyl) Ether	200 U
95-57-8	2-Chlorophenol	99 U
541-73-1	1,3-Dichlorobenzene	99 U
106-46-7	1,4-Dichlorobenzene	99 U
100-51-6	Benzyl Alcohol	99 U
95-50-1	1,2-Dichlorobenzene	99 U
95-48-7	2-Methylphenol	99 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	99 U
106-44-5	4-Methylphenol	99 U
621-64-7	N-Nitroso-Di-N-Propylamine	200 U
67-72-1	Hexachloroethane	99 U
98-95-3	Nitrobenzene	99 U
78-59-1	Isophorone	99 U
88-75-5	2-Nitrophenol	500 U
105-67-9	2,4-Dimethylphenol	99 U
65-85-0	Benzoic Acid	990 U
111-91-1	bis(2-Chloroethoxy) Methane	99 U
120-83-2	2,4-Dichlorophenol	300 U
120-82-1	1,2,4-Trichlorobenzene	99 U
91-20-3	**Naphthalene**	**190**
106-47-8	4-Chloroaniline	300 U
87-68-3	Hexachlorobutadiene	99 U
59-50-7	4-Chloro-3-methylphenol	200 U
91-57-6	2-Methylnaphthalene	99 U
77-47-4	Hexachlorocyclopentadiene	500 U
88-06-2	2,4,6-Trichlorophenol	500 U
95-95-4	2,4,5-Trichlorophenol	500 U
91-58-7	2-Chloronaphthalene	99 U
88-74-4	2-Nitroaniline	500 U
131-11-3	Dimethylphthalate	99 U
208-96-8	Acenaphthylene	99 U
99-09-2	3-Nitroaniline	600 U
83-32-9	**Acenaphthene**	**340**
51-28-5	2,4-Dinitrophenol	990 U J
100-02-7	4-Nitrophenol	500 U
132-64-9	Dibenzofuran	99 U
606-20-2	2,6-Dinitrotoluene	500 U

FORM-1

1912

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment
Data Release Authorized: ONB
Reported: 12/22/97

Sample No: 97424935
DILUTION
QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 12/04/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 37.1%
pH: 7.7

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	500 U
84-66-2	Diethylphthalate	99 U
7005-72-3	4-Chlorophenyl-phenylether	99 U
86-73-7	**Fluorene**	**120**
100-01-6	4-Nitroaniline	500 U
534-52-1	4,6-Dinitro-2-Methylphenol	990 U J
86-30-6	N-Nitrosodiphenylamine	99 U
101-55-3	4-Bromophenyl-phenylether	99 U
118-74-1	Hexachlorobenzene	99 U
87-86-5	Pentachlorophenol	500 U
85-01-8	**Phenanthrene**	**2,300**
86-74-8	Carbazole	99 U
120-12-7	**Anthracene**	**250**
84-74-2	Di-n-Butylphthalate	99 U
206-44-0	**Fluoranthene**	**4,200**
129-00-0	**Pyrene**	**5,600**
85-68-7	Butylbenzylphthalate	99 U
91-94-1	3,3'-Dichlorobenzidine	500 U
56-55-3	**Benzo(a)anthracene**	**800**
117-81-7	bis(2-Ethylhexyl)phthalate	99 U
218-01-9	**Chrysene**	**1,200**
117-84-0	Di-n-Octyl phthalate	99 U
205-99-2	**Benzo(b)fluoranthene**	**1,100**
207-08-9	**Benzo(k)fluoranthene**	**840**
50-32-8	**Benzo(a)pyrene**	**1,800**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**1,200**
53-70-3	**Dibenz(a,h)anthracene**	**160**
191-24-2	**Benzo(g,h,i)perylene**	**1,800**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	47.2%	d5-Phenol	51.9%
2-Fluorobiphenyl	53.4%	2-Fluorophenol	50.7%
d14-p-Terphenyl	62.8%	2,4,6-Tribromophenol	70.1%
d4-1,2-Dichlorobenzene	43.4%	d4-2-Chlorophenol	48.9%

FORM-1

1913

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 97424935
DILUTION

Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MB
Reported: 12/22/97

Date Analyzed: 12/04/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown_Aromatic	18.64	SVOA	300 JN
2.	---	Unknown_C16.H10_PNA	20.02	SVOA	310 JN
3.	---	Unknown	20.14	SVOA	240 JN
4.	---	Unknown_Aromatic	20.94	SVOA	250 JN
5.	---	Unknown_C18.H10_PNA	22.32	SVOA	500 JN
6.	---	Unknown	22.87	SVOA	380 JN
7.	---	Unknown_PNA	22.93	SVOA	410 JN
8.	---	Unknown_Aldehyde	23.37	SVOA	260 JN
9.	---	Unknown	23.76	SVOA	240 JN
10.	---	Unknown	24.45	SVOA	480 JN
11.	---	Unknown	24.58	SVOA	710 JN
12.	---	Unknown_Hydrocarbon	24.89	SVOA	820 JN
13.	---	Unknown_C20.H12_PNA	25.21	SVOA	1,200 JN
14.	---	Unknown_C20.H12_PNA	25.44	SVOA	1,000 JN
15.	---	Unknown_Aldehyde	25.71	SVOA	460 JN
16.	---	Unknown_Hydrocarbon	25.97	SVOA	460 JN
17.	---	Unknown	27.87	SVOA	530 JN
18.	---	Unknown_C22.H12_PNA	27.94	SVOA	480 JN
19.	---	Unknown	28.28	SVOA	620 JN
20.	---	Unknown	28.45	SVOA	730 JN

FORM-1-B

1935

JMB 12/7/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424913

WR-SD-SD049-0000A

Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 44.1%
pH: 7.5

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.99 U
319-85-7	beta-BHC	0.99 U
319-86-8	delta-BHC	0.99 UJ
58-89-9	gamma-BHC (Lindane)	0.99 U
76-44-8	Heptachlor	0.99 U
309-00-2	Aldrin	0.99 U
1024-57-3	Heptachlor Epoxide	0.99 U
959-98-8	Endosulfan I	0.99 U
60-57-1	Dieldrin	2.0 U
72-55-9	**4,4'-DDE**	**2.7** NJ
72-20-8	Endrin	2.0 U
33213-65-9	Endosulfan II	2.0 U
72-54-8	**4,4'-DDD**	**2.5** NJ
1031-07-8	Endosulfan Sulfate	2.0 U
50-29-3	4,4'-DDT	2.0 UJ
72-43-5	Methoxychlor	9.9 U
53494-70-5	Endrin Ketone	2.0 U
7421-93-4	Endrin Aldehyde	2.0 U
57-74-9	gamma Chlordane	1.6 ~~U~~UJ
5103-71-9	alpha Chlordane	0.99 U
8001-35-2	Toxaphene	99 U
12674-11-2	Aroclor 1016	20 U
53469-21-9	Aroclor 1242	20 U
12672-29-6	Aroclor 1248	20 U
11097-69-1	**Aroclor 1254**	**30**
11096-82-5	Aroclor 1260	40 ~~U~~UJ
11104-28-2	Aroclor 1221	40 U
11141-16-5	Aroclor 1232	20 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	48.5%
Tetrachlorometaxylene	34.5%

FORM-1

2396

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424915
WR-SD-SD048-0000A

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.95 U J
319-85-7	beta-BHC	0.95 U J
319-86-8	delta-BHC	0.95 U J
58-89-9	gamma-BHC (Lindane)	0.95 U J
76-44-8	Heptachlor	0.95 U J
309-00-2	Aldrin	0.95 U J
1024-57-3	Heptachlor Epoxide	0.95 U J
959-98-8	Endosulfan I	0.95 U J
60-57-1	Dieldrin	1.9 U J
72-55-9	**4,4'-DDE**	**3.2 N J**
72-20-8	Endrin	1.9 U J
33213-65-9	Endosulfan II	1.9 U J
72-54-8	**4,4'-DDD**	**7.0 N J**
1031-07-8	Endosulfan Sulfate	1.9 U J
50-29-3	**4,4'-DDT**	**4.5 J**
72-43-5	Methoxychlor	9.5 U J
53494-70-5	Endrin Ketone	5.5 ~~U~~ UJ
7421-93-4	Endrin Aldehyde	1.9 U J
57-74-9	gamma Chlordane	0.95 U J
5103-71-9	alpha Chlordane	0.95 U J
8001-35-2	Toxaphene	95 U J
12674-11-2	Aroclor 1016	19 U J
53469-21-9	Aroclor 1242	19 U J
12672-29-6	Aroclor 1248	19 U J
11097-69-1	**Aroclor 1254**	**53 J**
11096-82-5	**Aroclor 1260**	**51 J**
11104-28-2	Aroclor 1221	38 U J
11141-16-5	Aroclor 1232	19 U J

Pesticide Surrogate Recovery

Decachlorobiphenyl	37.8%
Tetrachlorometaxylene	28.5%

2404

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424916
WR-SD-SD048-1000 A

Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

CAS Number	Analyte	ug/kg	
319-84-6	alpha-BHC	0.99 U	J
319-85-7	beta-BHC	0.99 U	J
319-86-8	delta-BHC	0.99 U	J
58-89-9	gamma-BHC (Lindane)	0.99 U	J
76-44-8	Heptachlor	0.99 U	J
309-00-2	Aldrin	0.99 U	J
1024-57-3	Heptachlor Epoxide	0.99 U	J
959-98-8	Endosulfan I	0.99 U	J
60-57-1	Dieldrin	2.0 U	J
72-55-9	**4,4'-DDE**	**3.5**	J
72-20-8	Endrin	2.0 U	J
33213-65-9	Endosulfan II	2.0 U	J
72-54-8	**4,4'-DDD**	**8.0**	J
1031-07-8	Endosulfan Sulfate	2.0 U	J
50-29-3	**4,4'-DDT**	**14**	J
72-43-5	Methoxychlor	9.9 U	J
53494-70-5	Endrin Ketone	2.9 X UI	J
7421-93-4	Endrin Aldehyde	2.0 U	J
57-74-9	gamma Chlordane	1.2 X UI	J
5103-71-9	alpha Chlordane	0.99 U	J
8001-35-2	Toxaphene	99 U	J
12674-11-2	Aroclor 1016	20 U	J
53469-21-9	Aroclor 1242	20 U	J
12672-29-6	Aroclor 1248	20 U	J
11097-69-1	**Aroclor 1254**	**61**	J
11096-82-5	**Aroclor 1260**	**63**	J
11104-28-2	Aroclor 1221	40 U	J
11141-16-5	Aroclor 1232	20 U	J

Pesticide Surrogate Recovery

Decachlorobiphenyl	38.5%
Tetrachlorometaxylene	29.2%

FORM-1

00798

2412
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1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 97424920 WR-SD-SD133-0000A

Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/20/97

Date extracted: 10/27/97
Date analyzed: 11/14/97

Sample Amount: 52.1 g-dry-wt
Final Ext Vol: 10 mL
pH: 7.6

GPC Cleanup: Yes
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:1
Percent Moisture: 47.9%

Reported in Total ug/kg Dry Weight

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	19 U J
53469-21-9	Aroclor 1242	69 J
12672-29-6	Aroclor 1248	19 U J
11097-69-1	Aroclor 1254	~~880 E~~ 1500 D ~~J~~
11096-82-5	Aroclor 1260	~~530 E~~ 810 D ~~J~~
11104-28-2	Aroclor 1221	38 U J
11141-16-5	Aroclor 1232	19 U J

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PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	46.8%
Tetrachlorometaxylene	22.0%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

2420
JMB 11/27/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 97424920
DILUTION

Lab Sample ID: U199FDIL
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/20/97

Date extracted: 10/27/97
Date analyzed: 11/18/97

Sample Amount: 52.1 g-dry-wt
Final Ext Vol: 10 mL
pH: 7.6

GPC Cleanup: Yes
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:10
Percent Moisture: 47.9%

Reported in Total ug/kg Dry Weight

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	190 U
53469-21-9	Aroclor 1242	190 U
12672-29-6	Aroclor 1248	190 U
11097-69-1	**Aroclor 1254**	**1,500**
11096-82-5	**Aroclor 1260**	**810**
11104-28-2	Aroclor 1221	380 U
11141-16-5	Aroclor 1232	190 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

FORM-1 PCB

2428
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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 97424921 WR-SD-SD127-0000A

Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/20/97

Date extracted: 10/27/97
Date analyzed: 11/14/97

Sample Amount: 51.2 g-dry-wt
Final Ext Vol: 10 mL
pH: 7.4

GPC Cleanup: Yes
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:1
Percent Moisture: 51.2%

Reported in Total ug/kg Dry Weight

CAS Number	Analyte	Value	
12674-11-2	Aroclor 1016	20 U	UJ
53469-21-9	Aroclor 1242	20 U	UJ
12672-29-6	Aroclor 1248	20 U	UJ
11097-69-1	**Aroclor 1254**	**25**	J
11096-82-5	Aroclor 1260	20 U	UJ
11104-28-2	Aroclor 1221	39 U	UJ
11141-16-5	Aroclor 1232	20 U	UJ

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	28.8%
Tetrachlorometaxylene	28.0%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

FORM-1 PCB

JMB 1/27/98
2435

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 97424923

WR-SD-SD122-0000A

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/20/97

Date extracted: 10/27/97
Date analyzed: 11/14/97

Sample Amount: 52.0 g-dry-wt
Final Ext Vol: 10 mL
pH: 7.6

GPC Cleanup: Yes
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:1
Percent Moisture: 48.0%

Reported in Total ug/kg Dry Weight

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	19 U
53469-21-9	Aroclor 1242	19 U
12672-29-6	Aroclor 1248	19 U
11097-69-1	**Aroclor 1254**	**40**
11096-82-5	**Aroclor 1260**	**33**
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	35.0%
Tetrachlorometaxylene	30.2%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

FORM-1 PCB

2442 JM
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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 97424925
WR-SD-SD125-0000A

Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 12/16/97

Date extracted: 11/13/97
Date analyzed: 11/20/97

Sample Amount: 50.3 g-dry-wt
Final Ext Vol: 10 mL
pH: 7.5

GPC Cleanup: Yes
Florisil Cleanup: Yes
Acid Cleanup: Yes
Sulfur Cleanup: Yes
Conc/Dilution Factor: 1:1
Percent Moisture: 52.1%

Reported in Total ug/kg Dry Weight

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	20 U
53469-21-9	Aroclor 1242	20 U
12672-29-6	Aroclor 1248	20 U
11097-69-1	**Aroclor 1254**	**33**
11096-82-5	**Aroclor 1260**	**24**
11104-28-2	Aroclor 1221	40 U
11141-16-5	Aroclor 1232	20 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	35.2%
Tetrachlorometaxylene	30.0%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
NV Indicates no value reportable - see additional analyses.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

2483
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1/27/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424927

WR-SD-SD116-0000A

Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 49.3%
pH: 7.5

CAS Number	Analyte	ug/kg	
319-84-6	alpha-BHC	0.99 U	
319-85-7	beta-BHC	0.99 U	
319-86-8	delta-BHC	0.99 U	
58-89-9	gamma-BHC (Lindane)	0.99 U	
76-44-8	Heptachlor	0.99 U	
309-00-2	Aldrin	0.99 U	
1024-57-3	Heptachlor Epoxide	0.99 U	
959-98-8	Endosulfan I	0.99 U	
60-57-1	Dieldrin	2.0 U	
72-55-9	**4,4'-DDE**	**2.3**	J
72-20-8	Endrin	2.0 U	
33213-65-9	Endosulfan II	2.0 U	
72-54-8	**4,4'-DDD**	**2.2**	J
1031-07-8	Endosulfan Sulfate	2.0 U	
50-29-3	4,4'-DDT	2.0 U	
72-43-5	Methoxychlor	9.9 U	
53494-70-5	Endrin Ketone	2.0 U	
7421-93-4	Endrin Aldehyde	2.0 U	
57-74-9	gamma Chlordane	0.99 U	
5103-71-9	alpha Chlordane	0.99 U	
8001-35-2	Toxaphene	99 U	
12674-11-2	Aroclor 1016	20 U	
53469-21-9	Aroclor 1242	20 U	
12672-29-6	Aroclor 1248	20 U	
11097-69-1	Aroclor 1254	20 U	
11096-82-5	Aroclor 1260	20 U	
11104-28-2	Aroclor 1221	39 U	
11141-16-5	Aroclor 1232	20 U	

Pesticide Surrogate Recovery

Decachlorobiphenyl	32.5%
Tetrachlorometaxylene	29.8%

FORM-1

2453 JML
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424929

WR-SD-SD106-0000A

Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.3

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.97 U J
319-85-7	beta-BHC	0.97 U J
319-86-8	delta-BHC	0.97 U J
58-89-9	gamma-BHC (Lindane)	0.97 U J
76-44-8	Heptachlor	0.97 U J
309-00-2	Aldrin	0.97 U J
1024-57-3	Heptachlor Epoxide	0.97 U J
959-98-8	Endosulfan I	0.97 U J
60-57-1	Dieldrin	1.9 U J
72-55-9	**4,4'-DDE**	**2.0 J**
72-20-8	Endrin	1.9 U J
33213-65-9	Endosulfan II	1.9 U J
72-54-8	**4,4'-DDD**	**2.2 J**
1031-07-8	Endosulfan Sulfate	2.4 ~~J~~ UI J
50-29-3	4,4'-DDT	2.9 ~~J~~ UI J
72-43-5	Methoxychlor	9.7 U J
53494-70-5	Endrin Ketone	1.9 U J
7421-93-4	Endrin Aldehyde	1.9 U J
57-74-9	gamma Chlordane	0.97 U J
5103-71-9	alpha Chlordane	0.97 U J
8001-35-2	Toxaphene	97 U J
12674-11-2	Aroclor 1016	19 U J
53469-21-9	Aroclor 1242	19 U J
12672-29-6	Aroclor 1248	19 U J
11097-69-1	**Aroclor 1254**	**15 J**
11096-82-5	Aroclor 1260	19 U J
11104-28-2	Aroclor 1221	39 U J
11141-16-5	Aroclor 1232	19 U J

Pesticide Surrogate Recovery

Decachlorobiphenyl	36.0%
Tetrachlorometaxylene	29.0%

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ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424933
WR-SD-SD096-0000A

Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 53.1 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 37.6%
pH: 7.2

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.94 U
319-85-7	beta-BHC	0.94 U
319-86-8	delta-BHC	0.94 U J
58-89-9	gamma-BHC (Lindane)	0.94 U
76-44-8	Heptachlor	0.94 U
309-00-2	Aldrin	0.94 U
1024-57-3	Heptachlor Epoxide	0.94 U
959-98-8	Endosulfan I	0.94 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	3.1 ~~J~~ UI
72-20-8	Endrin	5.2 ~~J~~ UI
33213-65-9	Endosulfan II	1.9 U
72-54-8	**4,4'-DDD**	**7.6**
1031-07-8	Endosulfan Sulfate	3.0 ~~J~~ UI
50-29-3	4,4'-DDT	5.6 ~~J~~ UI J
72-43-5	Methoxychlor	9.4 U
53494-70-5	Endrin Ketone	8.9 ~~J~~ UI
7421-93-4	Endrin Aldehyde	4.8 ~~J~~ UI
57-74-9	gamma Chlordane	1.6 ~~J~~ UI
5103-71-9	alpha Chlordane	0.94 U
8001-35-2	Toxaphene	94 U
12674-11-2	Aroclor 1016	19 U
53469-21-9	Aroclor 1242	19 U
12672-29-6	Aroclor 1248	19 U
11097-69-1	**Aroclor 1254**	**70**
11096-82-5	**Aroclor 1260**	**160**
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	45.8%
Tetrachlorometaxylene	30.2%

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 97424935

WR-SD-SD057-0000A

Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment
Data Release Authorized:
Reported: 11/20/97

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Date extracted: 10/27/97
Date analyzed: 11/13/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 37.1%
pH: 7.7

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.99 U
319-85-7	beta-BHC	0.99 U
319-86-8	delta-BHC	0.99 U J
58-89-9	gamma-BHC (Lindane)	0.99 U
76-44-8	Heptachlor	0.99 U
309-00-2	Aldrin	0.99 U
1024-57-3	Heptachlor Epoxide	0.99 U
959-98-8	Endosulfan I	0.99 U
60-57-1	Dieldrin	2.0 U
72-55-9	4,4'-DDE	2.0 U
72-20-8	Endrin	2.0 U
33213-65-9	Endosulfan II	2.0 U
72-54-8	4,4'-DDD	2.0 U
1031-07-8	Endosulfan Sulfate	2.0 U
50-29-3	4,4'-DDT	5.0 J
72-43-5	Methoxychlor	9.9 U
53494-70-5	Endrin Ketone	2.0 U
7421-93-4	Endrin Aldehyde	2.0 U
57-74-9	gamma Chlordane	0.99 U
5103-71-9	alpha Chlordane	0.99 U
8001-35-2	Toxaphene	99 U
12674-11-2	Aroclor 1016	20 U
53469-21-9	Aroclor 1242	20 U
12672-29-6	Aroclor 1248	20 U
11097-69-1	Aroclor 1254	20 U
11096-82-5	Aroclor 1260	20 U
11104-28-2	Aroclor 1221	40 U
11141-16-5	Aroclor 1232	20 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	34.2%
Tetrachlorometaxylene	34.0%

FORM-1

2476
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1.8

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organics (Semivolatiles, Pesticides, and PCBs)
SDG No: U203
Site: Willamette River

WORK ASSIGNMENT NO: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABL

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 16 samples, SDG U203, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for semivolatiles, pesticides and PCBs by Analytical Resources, Inc. The samples were numbered:

97424937	97424939	97424941	97424942	97424943
97424944	97424945	97424947	97424948	97424949
97424951	97424953	97424954	97424956	97424958
97424960				

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1-05, February 1994).

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1. Timeliness

All samples met holding time criteria except the following:

Sample Number	Fraction	Sampling Date	Extraction Date	Holding Time	QC Limit
97424958	BNA	10/16/97	12/2/97	47 days	14 days
97424948RE	Pest/PCB	10/16/97	12/2/97	47 days	14 days

Samples were stored at -18°C upon receipt by the laboratory and thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. GC/MS Instrument Performance Check

All tuning check compound mass abundances and ratios were within required limits.

3. Initial Calibration

All target compound list (TCL) analytes and system monitoring compounds were within required limits for the initial calibration with average relative response factors $\overline{RRF}$ greater than or equal to 0.05.

All target compound list (TCL) analytes and system monitoring compounds were within required limits for the initial calibration with $\overline{RRF}$ percent relative standard deviations (percent RSD) less than 30 percent except:

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Date	Fraction	Compound	Percent RSD	Associated Samples
11/21/97	BNA	2,4-Dinitrophenol	31.8	97424937, 97424939, 97424941, 97424942, 97424943, 97424944, 97424945, 97424947, 97424948, 97424949, 97424951, 97424953, 97424954, 97424956, 97424958, 97424960

Results and quantitation limits for compounds associated with the above calibrations and samples have been qualified as estimated (J) as a high RSD is indicative of calibration nonlinearity.

4. Continuing Calibrations

All target compound list (TCL) analytes were within required limits for the continuing calibrations with average relative response factors $\overline{RRF}$ greater than or equal to 0.05.

All target compound list (TCL) analytes were within required limits for the continuing calibration with $\overline{RRF}$ percent differences less than 25 percent except:

Date	Time	Compound	% Diff	Associated Samples
11/24/97	1310	Hexachlorocyclopentadiene	-64.1	97424937, 97424939, 97424941, 97424942, 97424943, 97424944, 97424945, 97424947, 97424948, 97424949, 97424951

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Date	Time	Compound	% Diff	Associated Samples
11/25/97	1213	Hexachlorocyclopentadiene	-37.9	97424937DL, 97424941DL, 97424942DL, 97424943DL, 97424944DL, 97424947DL, 97424951DL, 97424953, 97424954
11/26/97	1048	Hexachlorocyclopentadiene	-30.6	97424955, 97424960
		2,4-Dinitrophenol	-52.1	
		4-Nitroaniline	-33.2	
		4,6-Dinitro-2-methylphenol	-34.1	
		Indeno(1,2,3-cd)pyrene	-28.9	
		Dibenzo(a,h)anthracene	-33.2	
12/3/97	1037	2,4-Dinitrophenol	-39-6	97424958
		4-Nitroaniline	-38.8	
		4,6-Dinitro-2-methylphenol	-31.7	
		Carbazole	-27.4	

Positive results for compounds associated with the above calibrations and samples have been qualified as estimated (J).

5. Detection Limits—Acceptable

Laboratory reporting limits are equal to or less than project required quantitation limits.

6. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

The following compounds were detected in laboratory method blanks.

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Blank ID	Date	Fraction	Compound (Retention Time)	Concentration (µg/kg)
Method Blank	11/24/97	BNA	bis(2-Ethylhexyl)phthalate	20
			1,1,2,2-Tetrachloroethane (7.54)	34 JN
Method Blank	12/16/97	Pesticide	Dieldrin	1.6
			4,4'-DDD	0.57
			4,4'-DDT	0.58

Reported levels of the above compounds were qualified as undetected with an adjusted quantitation limit (UJ) in samples if concentrations were less than five times concentrations present in the blank (ten times for common laboratory contaminants [e.g., phthalates]).

b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples except:

Sample	Fraction	Compound	Percent Recovery	QC Limits
97424960	Pest/PCB	Tetrachloro-m-xylene	26.8	30-150%

Sample results and quantitation limits were qualified as estimated (J/UJ).

8. Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) or matrix spike duplicate (MSD) percent recovery for the following compounds were outside QC guidelines.

Sample	Fraction	Compound	Percent Recovery	QC Limits
97424937	BNA	Pyrene	27.4	35-142%
LCS 11/24/97	BNA	N-Nitroso-di-n-propylamine	22.5	41-126%

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Sample	Fraction	Compound	Percent Recovery	QC Limits
LCS 12/3/97	BNA	N-Nitroso-di-n-propylamine	36.6	41-126%

Relative percent differences (RPD) between the MS and MSD percent recoveries exceeded QC guidelines for the following compounds:

Sample	Fraction	Compound	RPD	QC Limits
97424937	BNA	Pyrene	130	50%

No action was taken based solely on MS/MSD data since surrogate compound recoveries were acceptable.

9. Field Duplicate Analysis

Samples 97424942 and 97424943 were field duplicates. Results exhibited reasonable agreement, with the exception of fluoranthene (RPD = 37.5%), chrysene (RPD = 37.04%), benzo(k)fluoranthene (RPD = 46.58%), and 4,4'-DDD (RPD = 54.95%). No action was required since field duplicate results reflect variability rather than laboratory precision.

10. Internal Standards Performance

Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas. Retention time shifts for internal standards met requirements of less than 30 seconds.

11. GC/ECD Instrument Performance

a. Resolution Check Mixture

The resolution check mixture was analyzed at the proper frequency. Resolution (valley depth) between adjacent peaks was greater than 60 percent of the shorter peak.

b. Performance Evaluation Mixture

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i. Frequency

Samples were analyzed at the proper frequency.

ii. Resolution

Resolution was greater than 90 percent for all adjacent peaks.

iii. Retention Time Windows

Retention times of all pesticides were within windows calculated from the initial calibration.

iv. Pesticide Recovery

Recovery for all single component pesticides and surrogate compounds were within QC limits of 75 to 125 percent for both GC columns.

v. DDT/Endrin Breakdown

The percent breakdown for 4,4'-DDT and Endrin was less than 20 percent for each compound and combined breakdown was less than 30 percent on both GC columns.

12. Pesticide Initial Calibration

a. Individual Standard Mixtures

Resolution between adjacent peaks for the initial calibration, mid level concentration was greater than 90 percent.

Retention time windows were calculated correctly.

Appropriate standards concentrations were used and peak heights of 50 to 100 percent of full scale were obtained.

The percent relative standard deviation (% RSD) of calibration response factors was less than 20 percent for pesticides and less than 30 percent for surrogates on both GL columns.

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13. Pesticide Calibration Verification

Instrument blanks and PEM samples were analyzed at the proper frequency.

Resolution between adjacent peaks in individual pesticide mixtures exceeded 90 percent.

The difference between actual and calculated concentrations of individual pesticides exceeded QC criteria of ±25 percent for the following pesticides:

Date	Time	GC Column	Compound	% Diff	Associated Samples
11/17/97	20:35	DB-5	delta-BHC	40	97424937, 97424941, 97424942, 97424943, 97424947, 97424949, 97424956, 97424960
			Endosulfan Sulfate	35	
			Endrin Ketone	28	
11/17/97	20:35	DB-608	alpha-Chlordane	-30	97424937, 97424941, 97424942, 97424943, 97424947, 97424949, 97424956, 97424960
11/18/97	11:24	DB-5	delta-BHC	55	None
			Endosulfan Sulfate	53	
			Endrin Ketone	43	
11/18/97	11:24	DB-608	delta-BHC	40	None
			Endosulfan Sulfate	53	
			Endrin Ketone	40	

Results and quantitation limits for pesticides listed above were qualified as estimated (J).

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14. Pesticide Cleanup Checks

a. Florisil Cartridge Cleanup

Recovery for mixture A pesticides and surrogates were within QC limits of 80 to 120 percent. Recovery of 2,4,5-trichlorophenol was less than 5 percent as required.

b. Gel Permeation Cleanup (GPC)

All pesticides in the matrix spiking solution met recovery limits of 80 to 110 percent. Aroclor-1016 and 1260 patterns matched those of standards.

GPC blank concentrations did not exceed one-half the CRDL for any target analytes.

15. Sample Analysis

No unusual problems were noted. The following samples had high percent differences between the two columns greater than 35%.

Sample	Compound	DB-5 Conc.	DB-608 Conc.	% Difference
97424947	4,4'-DDE	8.1	5.5	47.3
	4,4'-DDD	35	15	133.3
	4,4'-DDT	24	17	41.2
97424948RE	4,4'-DDD	150	51	194.1
	4,4'-DDT	61	28	117.9
97424948REDL	4,4,'-DDD	120	82	46.3
97424949	4,4'-DDE	8.6	5.3	62.3
	4,4'-DDD	51	20	155
	4,4'-DDT	37	22	68.2
97424960	Aroclor 1254	69	41	68

Differences can arise from analytical interferences on one column. However, the percent differences are not deemed significant at the reported concentrations. The lower concentration was reported for each analyte.

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16. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment
Data Release Authorized: BNS
Reported: 12/04/97

Sample No: 9742 4937 WR-SD-SD092-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.6%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**300**
111-44-4	Bis-(2-Chloroethyl) Ether	93 U
95-57-8	**2-Chlorophenol**	**93**
541-73-1	1,3-Dichlorobenzene	47 U
106-46-7	1,4-Dichlorobenzene	47 U
100-51-6	Benzyl Alcohol	47 U
95-50-1	1,2-Dichlorobenzene	47 U
95-48-7	2-Methylphenol	47 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	47 U
106-44-5	**4-Methylphenol**	**250**
621-64-7	N-Nitroso-Di-N-Propylamine	93 U
67-72-1	**Hexachloroethane**	~~17,000 E~~ 20000 D
98-95-3	Nitrobenzene	47 U
78-59-1	Isophorone	47 U
88-75-5	2-Nitrophenol	230 U
105-67-9	2,4-Dimethylphenol	47 U
65-85-0	**Benzoic Acid**	**2,600**
111-91-1	bis(2-Chloroethoxy) Methane	47 U
120-83-2	2,4-Dichlorophenol	140 U
120-82-1	1,2,4-Trichlorobenzene	47 U
91-20-3	**Naphthalene**	**1,100**
106-47-8	4-Chloroaniline	140 U
87-68-3	**Hexachlorobutadiene**	~~23,000 E~~ 34000 D
59-50-7	4-Chloro-3-methylphenol	93 U
91-57-6	**2-Methylnaphthalene**	**610**
77-47-4	Hexachlorocyclopentadiene	230 UJ
88-06-2	2,4,6-Trichlorophenol	230 U
95-95-4	2,4,5-Trichlorophenol	230 U
91-58-7	2-Chloronaphthalene	47 U
88-74-4	2-Nitroaniline	230 U
131-11-3	Dimethylphthalate	47 U
208-96-8	**Acenaphthylene**	**48**
99-09-2	3-Nitroaniline	280 U
83-32-9	**Acenaphthene**	**290**
51-28-5	2,4-Dinitrophenol	470 UJ
100-02-7	4-Nitrophenol	230 U
132-64-9	**Dibenzofuran**	**630**
606-20-2	2,6-Dinitrotoluene	230 U

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/04/97

Sample No: 9742 4937 WR-SD-SD092-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.6%
pH: 7.5

CAS Number	Analyte	ug/kg	
121-14-2	2,4-Dinitrotoluene	230 U	
84-66-2	Diethylphthalate	47 U	
7005-72-3	4-Chlorophenyl-phenylether	47 U	
86-73-7	**Fluorene**	**600**	
100-01-6	4-Nitroaniline	230 U	
534-52-1	4,6-Dinitro-2-Methylphenol	470 U	
86-30-6	N-Nitrosodiphenylamine	47 U	
101-55-3	4-Bromophenyl-phenylether	47 U	
118-74-1	**Hexachlorobenzene**	**1,500**	
87-86-5	Pentachlorophenol	230 U	
85-01-8	**Phenanthrene**	~~14,000 E~~	13000 D
86-74-8	**Carbazole**	**390**	
120-12-7	**Anthracene**	**250**	
84-74-2	Di-n-Butylphthalate	47 U	
206-44-0	**Fluoranthene**	~~11,000 E~~	10000 D
129-00-0	**Pyrene**	~~6,700 E~~	6000 D
85-68-7	Butylbenzylphthalate	47 U	
91-94-1	3,3'-Dichlorobenzidine	230 U	
56-55-3	**Benzo(a)anthracene**	**1,800**	
117-81-7	**bis(2-Ethylhexyl)phthalate**	**350** B	
218-01-9	**Chrysene**	~~8,300 E~~	7100 D
117-84-0	Di-n-Octyl phthalate	47 U	
205-99-2	**Benzo(b)fluoranthene**	~~7,900 E~~	5600 D
207-08-9	**Benzo(k)fluoranthene**	**3,000**	
50-32-8	**Benzo(a)pyrene**	**510**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**1,400**	
53-70-3	**Dibenz(a,h)anthracene**	**990**	
191-24-2	**Benzo(g,h,i)perylene**	**1,800**	

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	58.6%	d5-Phenol	66.6%
2-Fluorobiphenyl	56.3%	2-Fluorophenol	59.2%
d14-p-Terphenyl	68.6%	2,4,6-Tribromophenol	66.2%
d4-1,2-Dichlorobenzene	50.8%	d4-2-Chlorophenol	61.1%

FORM-1

632 JME 1/20/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4937
WR- SD- SD092- 0000A

Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [illegible]
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown_Chlorinated_Hydro	7.46	SVOA	1,000 JN
2.	79-34-5	Ethane,_1,1,2,2-tetrachlo	7.53	SVOA	2,300 JN
3.	90-12-0	Naphthalene,_1-methyl-___	13.09	SVOA	1,200 JN
4.	--	Unknown_Chlorinated_Hydro	14.23	SVOA	1,100 JN
5.	--	Unknown_Aromatic_____	14.33	SVOA	1,800 JN
6.	--	Naphthalene,_Trimethyl_Is	15.65	SVOA	870 JN
7.	--	Unknown_C15.H12_PNA_____	19.00	SVOA	1,200 JN
8.	--	Unknown_C15.H12_PNA_____	19.06	SVOA	1,000 JN
9.	--	Unknown_Organic_Acid_____	19.15	SVOA	1,300 JN
10.	--	Unknown_Aromatic_____	19.23	SVOA	1,100 JN
11.	--	Unknown_____	19.47	SVOA	1,300 JN
12.	--	Unknown_____	19.68	SVOA	1,100 JN
13.	--	Unknown_Aromatic_____	20.59	SVOA	1,900 JN
14.	--	Unknown_Chloro_Aro_____	20.99	SVOA	1,600 JN
15.	--	Unknown_Chloro_Aro_____	21.36	SVOA	5,000 JN
16.	--	Unknown_Aromatic_____	21.57	SVOA	7,000 JN
17.	--	Unknown_Chloro_Aro_____	21.64	SVOA	3,800 JN
18.	--	Unknown_Chloro_Aro_____	21.89	SVOA	9,900 JN
19.	--	Unknown_Chloro_Aro_____	22.45	SVOA	4,500 JN
20.	--	Unknown_____	24.86	SVOA	940 JN

JMB 1/20/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment
Data Release Authorized: [illegible]
Reported: 12/04/97

Sample No: 9742 4937
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 46.6%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	930 U
111-44-4	Bis-(2-Chloroethyl) Ether	1,900 U
95-57-8	2-Chlorophenol	930 U
541-73-1	1,3-Dichlorobenzene	930 U
106-46-7	1,4-Dichlorobenzene	930 U
100-51-6	Benzyl Alcohol	930 U
95-50-1	1,2-Dichlorobenzene	930 U
95-48-7	2-Methylphenol	930 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	930 U
106-44-5	4-Methylphenol	930 U
621-64-7	N-Nitroso-Di-N-Propylamine	1,900 U
67-72-1	**Hexachloroethane**	**20,000**
98-95-3	Nitrobenzene	930 U
78-59-1	Isophorone	930 U
88-75-5	2-Nitrophenol	4,700 U
105-67-9	2,4-Dimethylphenol	930 U
65-85-0	Benzoic Acid	9,300 U
111-91-1	bis(2-Chloroethoxy) Methane	930 U
120-83-2	2,4-Dichlorophenol	2,800 U
120-82-1	1,2,4-Trichlorobenzene	930 U
91-20-3	Naphthalene	930 U
106-47-8	4-Chloroaniline	2,800 U
87-68-3	**Hexachlorobutadiene**	**34,000**
59-50-7	4-Chloro-3-methylphenol	1,900 U
91-57-6	2-Methylnaphthalene	930 U
77-47-4	Hexachlorocyclopentadiene	4,700 U J
88-06-2	2,4,6-Trichlorophenol	4,700 U
95-95-4	2,4,5-Trichlorophenol	4,700 U
91-58-7	2-Chloronaphthalene	930 U
88-74-4	2-Nitroaniline	4,700 U
131-11-3	Dimethylphthalate	930 U
208-96-8	Acenaphthylene	930 U
99-09-2	3-Nitroaniline	5,600 U
83-32-9	Acenaphthene	930 U
51-28-5	2,4-Dinitrophenol	9,300 U J
100-02-7	4-Nitrophenol	4,700 U
132-64-9	Dibenzofuran	930 U
606-20-2	2,6-Dinitrotoluene	4,700 U

690 JME 1/20/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment
Data Release Authorized: RWB
Reported: 12/04/97

Sample No: 9742 4937
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 46.6%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	4,700 U
84-66-2	Diethylphthalate	930 U
7005-72-3	4-Chlorophenyl-phenylether	930 U
86-73-7	Fluorene	930 U
100-01-6	4-Nitroaniline	4,700 U
534-52-1	4,6-Dinitro-2-Methylphenol	9,300 U
86-30-6	N-Nitrosodiphenylamine	930 U
101-55-3	4-Bromophenyl-phenylether	930 U
118-74-1	**Hexachlorobenzene**	**1,500**
87-86-5	Pentachlorophenol	4,700 U
85-01-8	**Phenanthrene**	**13,000**
86-74-8	Carbazole	930 U
120-12-7	Anthracene	930 U
84-74-2	Di-n-Butylphthalate	930 U
206-44-0	**Fluoranthene**	**10,000**
129-00-0	**Pyrene**	**6,000**
85-68-7	Butylbenzylphthalate	930 U
91-94-1	3,3'-Dichlorobenzidine	4,700 U
56-55-3	**Benzo(a)anthracene**	**1,400**
117-81-7	bis(2-Ethylhexyl)phthalate	930 U
218-01-9	**Chrysene**	**7,100**
117-84-0	Di-n-Octyl phthalate	930 U
205-99-2	**Benzo(b)fluoranthene**	**5,600**
207-08-9	**Benzo(k)fluoranthene**	**3,200**
50-32-8	Benzo(a)pyrene	930 U
193-39-5	**Indeno(1,2,3-cd)pyrene**	**1,300**
53-70-3	Dibenz(a,h)anthracene	930 U
191-24-2	**Benzo(g,h,i)perylene**	**1,800**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	55.2%	d5-Phenol	59.7%
2-Fluorobiphenyl	53.6%	2-Fluorophenol	52.3%
d14-p-Terphenyl	63.2%	2,4,6-Tribromophenol	60.3%
d4-1,2-Dichlorobenzene	51.2%	d4-2-Chlorophenol	51.7%

FORM-1

00822

JMB 1/20/9

691

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4937
DILUTION

Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: BNP
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	79-34-5	Ethane, 1,1,2,2-tetrachlo	7.49	SVOA	2,500 JN
2.	76-01-7	Ethane, pentachloro-	8.48	SVOA	3,500 JN
3.	55880-77-8	1,3-Butadiene, pentachlor	11.12	SVOA	5,700 JN
4.	---	Unknown Hydrocarbon	11.57	SVOA	1,900 JN
5.	---	Unknown Hydrocarbon	12.28	SVOA	2,500 JN
6.	---	Unknown Hydrocarbon	13.48	SVOA	3,800 JN
7.	---	Unknown Hydrocarbon	14.39	SVOA	3,800 JN
8.	---	Unknown Hydrocarbon	16.27	SVOA	4,700 JN
9.	---	Unknown Hydrocarbon	16.80	SVOA	6,200 JN
10.	---	Unknown Hydrocarbon	17.73	SVOA	4,500 JN
11.	---	Unknown Chloro Aro	20.87	SVOA	5,100 JN
12.	---	Unknown Chloro Aro	21.22	SVOA	19,000 JN
13.	---	Unknown Aromatic	21.42	SVOA	27,000 JN
14.	---	Unknown Chloro Aro	21.48	SVOA	12,000 JN
15.	---	Unknown Chloro Aro	21.73	SVOA	39,000 JN
16.	---	Unknown Chloro Aro	21.80	SVOA	2,300 JN
17.	---	Unknown Chloro Aro	22.31	SVOA	16,000 JN
18.	---	Unknown Hydrocarbon	22.91	SVOA	4,200 JN
19.	---	Unknown	24.22	SVOA	2,700 JN
20.					

FORM-1-B

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710

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203C
LIMS ID: 97-19727
Matrix: Sediment
Data Release Authorized: GMB
Reported: 12/04/97

Sample No: 9742 4939
WR-SD-SD100-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.4%
pH: 7.1

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**52**
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**410**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**720**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	Naphthalene	20 U
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	2-Methylnaphthalene	20 U
77-47-4	Hexachlorocyclopentadiene	98 U J
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	Acenaphthene	20 U
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	Dibenzofuran	20 U
606-20-2	2,6-Dinitrotoluene	98 U

733 JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203C
LIMS ID: 97-19727
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4939
WR-SD-SD100-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.4%
pH: 7.1

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	Fluorene	20 U
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	**41**
86-74-8	Carbazole	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**52**
129-00-0	**Pyrene**	**56**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**20**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**250** B
218-01-9	**Chrysene**	**35**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**27**
207-08-9	**Benzo(k)fluoranthene**	**20**
50-32-8	**Benzo(a)pyrene**	**29**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	**Benzo(g,h,i)perylene**	**24**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	52.0%	d5-Phenol	56.6%
2-Fluorobiphenyl	55.3%	2-Fluorophenol	54.8%
d14-p-Terphenyl	64.4%	2,4,6-Tribromophenol	61.9%
d4-1,2-Dichlorobenzene	47.7%	d4-2-Chlorophenol	55.1%

FORM-1
00825

734 JME 1/2019

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4939
WR-SD-SD100-0000A

Lab Sample ID: U203C
LIMS ID: 97-19727
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: GWP
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	79-34-5	Ethane, 1,1,2,2-tetrachlo	7.55	SVOA	87 ~~JNB~~ R
2.	--	Unknown	8.96	SVOA	100 JN
3.	108-46-3	Resorcinol	12.49	SVOA	91 JN
4.	90-12-0	Naphthalene, 1-methyl-	13.09	SVOA	99 JN
5.	--	Unknown	14.65	SVOA	120 JN
6.	--	Unknown	14.77	SVOA	140 JN
7.	--	Unknown Organic Acid	19.12	SVOA	160 JN
8.	--	Unknown	19.20	SVOA	98 JN
9.	--	Unknown	19.82	SVOA	130 JN
10.	--	Unknown Aromatic	21.52	SVOA	510 JN
11.	--	Unknown Aldehyde	25.12	SVOA	270 JN
12.	--	Unknown	25.58	SVOA	190 JN
13.	--	Unknown	26.95	SVOA	630 JN
14.	--	Unknown Sterol type	27.23	SVOA	280 JN
15.	--	Unknown	27.51	SVOA	270 JN
16.	--	Unknown	28.81	SVOA	540 JN
17.	--	Unknown	28.98	SVOA	500 JN
18.	--	Unknown	29.06	SVOA	330 JN
19.	--	Unknown	29.19	SVOA	380 JN
20.	--	Unknown	29.39	SVOA	570 JN

FORM-1-B

JMB 1/2019

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment
Data Release Authorized: GWR
Reported: 12/04/97

Sample No: 9742 4941 WR-SD-SD090-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.7%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**130**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	**Hexachloroethane**	**36**
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	97 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**430**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**100**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**79**
77-47-4	Hexachlorocyclopentadiene	97 U J
88-06-2	2,4,6-Trichlorophenol	97 U
95-95-4	2,4,5-Trichlorophenol	97 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	97 U
131-11-3	Dimethylphthalate	19 U
208-96-8	**Acenaphthylene**	**21**
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**240**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	97 U
132-64-9	**Dibenzofuran**	**160**
606-20-2	2,6-Dinitrotoluene	97 U

FORM-1

779 JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment
Data Release Authorized: RWB
Reported: 12/04/97

Sample No: 9742 4941 WR-SD-SD090-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.7%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	97 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**170**
100-01-6	4-Nitroaniline	97 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	97 U
85-01-8	**Phenanthrene**	**770**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**230**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**1,500**
129-00-0	**Pyrene**	**1,600** ~~E~~ D
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	97 U
56-55-3	**Benzo(a)anthracene**	**700**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**180** ~~B~~ UJ
218-01-9	**Chrysene**	**970**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**660**
207-08-9	**Benzo(k)fluoranthene**	**600**
50-32-8	**Benzo(a)pyrene**	**560**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**280**
53-70-3	**Dibenz(a,h)anthracene**	**100**
191-24-2	**Benzo(g,h,i)perylene**	**270**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	47.2%	d5-Phenol	51.8%
2-Fluorobiphenyl	45.9%	2-Fluorophenol	50.1%
d14-p-Terphenyl	58.2%	2,4,6-Tribromophenol	58.5%
d4-1,2-Dichlorobenzene	44.0%	d4-2-Chlorophenol	51.5%

730 JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4941
WR-SD- SD090-0000A

Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.97	SVOA	590 JN
2.	90-12-0	Naphthalene, 1-methyl-	13.09	SVOA	410 JN
3.	--	Unknown	13.40	SVOA	400 JN
4.	--	Unknown	14.37	SVOA	320 JN
5.	--	Unknown	14.78	SVOA	340 JN
6.	--	Naphthalene, Trimethyl Is	15.67	SVOA	330 JN
7.	--	Unknown C14.H12 PNA	17.29	SVOA	450 JN
8.	--	Unknown	19.15	SVOA	400 JN
9.	--	Unknown Aromatic	19.25	SVOA	400 JN
10.	--	Unknown	19.70	SVOA	430 JN
11.	--	Unknown	19.96	SVOA	400 JN
12.	--	Unknown Aromatic	20.59	SVOA	380 JN
13.	--	Unknown Aromatic	21.56	SVOA	1,200 JN
14.	--	Unknown Chloro Aro	22.43	SVOA	390 JN
15.	--	Unknown	23.03	SVOA	500 JN
16.	--	Unknown Aldehyde	25.13	SVOA	290 JN
17.	--	Unknown	27.53	SVOA	380 JN
18.	--	Unknown Sterol type	28.72	SVOA	550 JN
19.	--	Unknown	28.83	SVOA	620 JN
20.	--	Unknown	29.41	SVOA	420 JN

JMB 1/20/9
809

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No.: 9742 4941
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 48.7%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	97 U
111-44-4	Bis-(2-Chloroethyl) Ether	190 U
95-57-8	2-Chlorophenol	97 U
541-73-1	1,3-Dichlorobenzene	97 U
106-46-7	1,4-Dichlorobenzene	97 U
100-51-6	Benzyl Alcohol	97 U
95-50-1	1,2-Dichlorobenzene	97 U
95-48-7	2-Methylphenol	97 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	97 U
106-44-5	**4-Methylphenol**	**130**
621-64-7	N-Nitroso-Di-N-Propylamine	190 U
67-72-1	Hexachloroethane	97 U
98-95-3	Nitrobenzene	97 U
78-59-1	Isophorone	97 U
88-75-5	2-Nitrophenol	490 U
105-67-9	2,4-Dimethylphenol	97 U
65-85-0	Benzoic Acid	970 U
111-91-1	bis(2-Chloroethoxy) Methane	97 U
120-83-2	2,4-Dichlorophenol	290 U
120-82-1	1,2,4-Trichlorobenzene	97 U
91-20-3	Naphthalene	97 U
106-47-8	4-Chloroaniline	290 U
87-68-3	Hexachlorobutadiene	97 U
59-50-7	4-Chloro-3-methylphenol	190 U
91-57-6	2-Methylnaphthalene	97 U
77-47-4	Hexachlorocyclopentadiene	490 U J
88-06-2	2,4,6-Trichlorophenol	490 U
95-95-4	2,4,5-Trichlorophenol	490 U
91-58-7	2-Chloronaphthalene	97 U
88-74-4	2-Nitroaniline	490 U
131-11-3	Dimethylphthalate	97 U
208-96-8	Acenaphthylene	97 U
99-09-2	3-Nitroaniline	580 U
83-32-9	**Acenaphthene**	**210**
51-28-5	2,4-Dinitrophenol	970 U J
100-02-7	4-Nitrophenol	490 U
132-64-9	**Dibenzofuran**	**130**
606-20-2	2,6-Dinitrotoluene	490 U

FORM-1

833 JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment
Data Release Authorized: CNB
Reported: 12/04/97

Sample No.: 9742 4941
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 48.7%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	490 U
84-66-2	Diethylphthalate	97 U
7005-72-3	4-Chlorophenyl-phenylether	97 U
86-73-7	**Fluorene**	**150**
100-01-6	4-Nitroaniline	490 U
534-52-1	4,6-Dinitro-2-Methylphenol	970 U
86-30-6	N-Nitrosodiphenylamine	97 U
101-55-3	4-Bromophenyl-phenylether	97 U
118-74-1	Hexachlorobenzene	97 U
87-86-5	Pentachlorophenol	490 U
85-01-8	**Phenanthrene**	**630**
86-74-8	Carbazole	97 U
120-12-7	**Anthracene**	**200**
84-74-2	Di-n-Butylphthalate	97 U
206-44-0	**Fluoranthene**	**1,400**
129-00-0	**Pyrene**	**1,600**
85-68-7	Butylbenzylphthalate	97 U
91-94-1	3,3'-Dichlorobenzidine	490 U
56-55-3	**Benzo(a)anthracene**	**580**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**140** BUJ
218-01-9	**Chrysene**	**880**
117-84-0	Di-n-Octyl phthalate	97 U
205-99-2	**Benzo(b)fluoranthene**	**610**
207-08-9	**Benzo(k)fluoranthene**	**460**
50-32-8	**Benzo(a)pyrene**	**480**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**260**
53-70-3	**Dibenz(a,h)anthracene**	**110**
191-24-2	**Benzo(g,h,i)perylene**	**310**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	45.0%	d5-Phenol	50.3%
2-Fluorobiphenyl	43.0%	2-Fluorophenol	46.8%
d14-p-Terphenyl	59.0%	2,4,6-Tribromophenol	54.0%
d4-1,2-Dichlorobenzene	38.0%	d4-2-Chlorophenol	45.1%

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4941
DILUTION

Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: BKY
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.90	SVOA	710 J N
2.	---	Unknown_Cycloalkane	11.84	SVOA	320 J N
3.	90-12-0	Naphthalene,_1-methyl-	13.01	SVOA	510 JN
4.	---	Unknown	13.74	SVOA	480 J N
5.	---	Unknown_Aromatic	14.69	SVOA	430 J N
6.	---	Unknown	16.86	SVOA	250 J N
7.	---	Unknown_Aromatic	17.18	SVOA	300 J N
8.	---	Unknown_C15.H12_PNA	19.02	SVOA	290 J N
9.	---	Unknown_Aromatic	19.13	SVOA	550 J N
10.	---	Unknown	19.59	SVOA	460 J N
11.	---	Unknown_Aromatic	20.48	SVOA	340 J N
12.	---	Unknown_Chloro_Aro	20.86	SVOA	880 J N
13.	---	Unknown_Aromatic	21.42	SVOA	3,200 J N
14.	---	Unknown_Chloro_Aro	21.73	SVOA	800 J N
15.	---	Unknown_Chloro_Aro	22.32	SVOA	990 J N
16.	---	Unknown	25.01	SVOA	780 J N
17.	---	Unknown	28.63	SVOA	540 J N
18.	---	Unknown	28.79	SVOA	590 J N
19.	---	Unknown	28.99	SVOA	960 J N
20.	---	Unknown	29.18	SVOA	970 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4942 WR-SD-SD084-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.1%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**100**
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	**Hexachloroethane**	**31**
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	99 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**770**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**590**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**220**
77-47-4	Hexachlorocyclopentadiene	99 U J
88-06-2	2,4,6-Trichlorophenol	99 U
95-95-4	2,4,5-Trichlorophenol	99 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	99 U
131-11-3	Dimethylphthalate	20 U
208-96-8	**Acenaphthylene**	**49**
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**820**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	99 U
132-64-9	**Dibenzofuran**	**350**
606-20-2	2,6-Dinitrotoluene	99 U

FORM-1

JMB 882 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4942 WR-SD-SD084-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.1%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	99 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**620**
100-01-6	4-Nitroaniline	99 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	**Phenanthrene**	**3,600 ~~E~~ D**
86-74-8	**Carbazole**	**46**
120-12-7	**Anthracene**	**550**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**~~2,500 E~~ 2600 D**
129-00-0	**Pyrene**	**~~2,800 E~~ 3000 D**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	99 U
56-55-3	**Benzo(a)anthracene**	**760**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**220 ~~B~~**
218-01-9	**Chrysene**	**1,100**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**690**
207-08-9	**Benzo(k)fluoranthene**	**560**
50-32-8	**Benzo(a)pyrene**	**950**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**540**
53-70-3	**Dibenz(a,h)anthracene**	**150**
191-24-2	**Benzo(g,h,i)perylene**	**640**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	48.4%	d5-Phenol	52.8%
2-Fluorobiphenyl	49.0%	2-Fluorophenol	52.7%
d14-p-Terphenyl	60.3%	2,4,6-Tribromophenol	60.0%
d4-1,2-Dichlorobenzene	44.5%	d4-2-Chlorophenol	52.1%

FORM-1

JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4942
WR-SD-SD084-0000A

Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [illegible]
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	90-12-0	Naphthalene,_1-methyl-___	13.10	SVOA	590 JN
2.	--	Naphthalene,_Dimethyl_Iso	14.14	SVOA	530 JN
3.	--	Naphthalene,_Dimethyl_Iso	14.32	SVOA	870 JN
4.	--	Naphthalene,_Trimethyl_Is	15.67	SVOA	470 JN
5.	--	Unknown_Aromatic_____	17.29	SVOA	440 JN
6.	132-65-0	Dibenzothiophene_____	17.78	SVOA	390 JN
7.	--	Unknown_C15.H12_PNA_____	19.02	SVOA	520 JN
8.	--	Unknown_C15.H12_PNA_____	19.08	SVOA	440 JN
9.	--	Unknown_Aromatic_____	19.25	SVOA	500 JN
10.	--	Unknown_____	19.71	SVOA	450 JN
11.	--	Unknown_____	20.61	SVOA	820 JN
12.	--	Unknown_Chloro_Aro_____	21.01	SVOA	830 JN
13.	--	Unknown_PNA_____	21.59	SVOA	2,300 JN
14.	--	Unknown_Chloro_Aro_____	21.90	SVOA	1,700 JN
15.	--	Unknown_Chloro_Aro_____	22.47	SVOA	1,600 JN
16.	--	Unknown_____	27.06	SVOA	780 JN
17.	--	Unknown_Sterol_type_____	28.75	SVOA	610 JN
18.	--	Unknown_____	28.85	SVOA	490 JN
19.	--	Unknown_____	29.23	SVOA	420 JN
20.	--	Unknown_____	29.43	SVOA	490 JN

FORM-1-B

JMB
1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment
Data Release Authorized: DWB
Reported: 12/04/97

Sample No. 9742 4942
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.1%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	99 U
111-44-4	Bis-(2-Chloroethyl) Ether	200 U
95-57-8	2-Chlorophenol	99 U
541-73-1	1,3-Dichlorobenzene	99 U
106-46-7	1,4-Dichlorobenzene	99 U
100-51-6	Benzyl Alcohol	99 U
95-50-1	1,2-Dichlorobenzene	99 U
95-48-7	2-Methylphenol	99 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	99 U
106-44-5	**4-Methylphenol**	**100**
621-64-7	N-Nitroso-Di-N-Propylamine	200 U
67-72-1	Hexachloroethane	99 U
98-95-3	Nitrobenzene	99 U
78-59-1	Isophorone	99 U
88-75-5	2-Nitrophenol	500 U
105-67-9	2,4-Dimethylphenol	99 U
65-85-0	Benzoic Acid	990 U
111-91-1	bis(2-Chloroethoxy) Methane	99 U
120-83-2	2,4-Dichlorophenol	300 U
120-82-1	1,2,4-Trichlorobenzene	99 U
91-20-3	**Naphthalene**	**520**
106-47-8	4-Chloroaniline	300 U
87-68-3	Hexachlorobutadiene	99 U
59-50-7	4-Chloro-3-methylphenol	200 U
91-57-6	**2-Methylnaphthalene**	**180**
77-47-4	Hexachlorocyclopentadiene	500 U J
88-06-2	2,4,6-Trichlorophenol	500 U
95-95-4	2,4,5-Trichlorophenol	500 U
91-58-7	2-Chloronaphthalene	99 U
88-74-4	2-Nitroaniline	500 U
131-11-3	Dimethylphthalate	99 U
208-96-8	Acenaphthylene	99 U
99-09-2	3-Nitroaniline	600 U
83-32-9	**Acenaphthene**	**720**
51-28-5	2,4-Dinitrophenol	990 U J
100-02-7	4-Nitrophenol	500 U
132-64-9	**Dibenzofuran**	**310**
606-20-2	2,6-Dinitrotoluene	500 U

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2

Sample No: 9742 4942
DILUTION

Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.1%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	500 U
84-66-2	Diethylphthalate	99 U
7005-72-3	4-Chlorophenyl-phenylether	99 U
86-73-7	**Fluorene**	**520**
100-01-6	4-Nitroaniline	500 U
534-52-1	4,6-Dinitro-2-Methylphenol	990 U
86-30-6	N-Nitrosodiphenylamine	99 U
101-55-3	4-Bromophenyl-phenylether	99 U
118-74-1	Hexachlorobenzene	99 U
87-86-5	Pentachlorophenol	500 U
85-01-8	**Phenanthrene**	**3,600**
86-74-8	Carbazole	99 U
120-12-7	**Anthracene**	**470**
84-74-2	Di-n-Butylphthalate	99 U
206-44-0	**Fluoranthene**	**2,600**
129-00-0	**Pyrene**	**3,000**
85-68-7	Butylbenzylphthalate	99 U
91-94-1	3,3'-Dichlorobenzidine	500 U
56-55-3	**Benzo(a)anthracene**	**670**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**190** ~~B~~ UJ
218-01-9	**Chrysene**	**1,000**
117-84-0	Di-n-Octyl phthalate	99 U
205-99-2	**Benzo(b)fluoranthene**	**600**
207-08-9	**Benzo(k)fluoranthene**	**520**
50-32-8	**Benzo(a)pyrene**	**820**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**540**
53-70-3	**Dibenz(a,h)anthracene**	**130**
191-24-2	**Benzo(g,h,i)perylene**	**700**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	47.8%	d5-Phenol	54.5%
2-Fluorobiphenyl	48.6%	2-Fluorophenol	50.9%
d14-p-Terphenyl	58.6%	2,4,6-Tribromophenol	56.4%
d4-1,2-Dichlorobenzene	40.8%	d4-2-Chlorophenol	50.5%

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4942
DILUTION

Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.90	SVOA	590 JN
2.	90-12-0	Naphthalene, 1-methyl-	13.02	SVOA	680 JN
3.	---	Naphthalene, Dimethyl Iso	14.06	SVOA	600 JN
4.	---	Naphthalene, Dimethyl Iso	14.22	SVOA	820 JN
5.	---	Naphthalene, Dimethyl Iso	14.26	SVOA	570 JN
6.	---	Unknown Aromatic	17.17	SVOA	590 JN
7.	132-65-0	Dibenzothiophene	17.67	SVOA	650 JN
8.	---	Unknown C15.H12 PNA	18.95	SVOA	620 JN
9.	---	Unknown Aromatic	19.13	SVOA	770 JN
10.	---	Unknown	19.59	SVOA	500 JN
11.	---	Unknown Chloro Aro	20.42	SVOA	500 JN
12.	---	Unknown Aromatic	20.48	SVOA	1,300 JN
13.	---	Unknown Chloro Aro	20.88	SVOA	2,800 JN
14.	---	Unknown Chloro Aro	21.23	SVOA	3,800 JN
15.	---	Unknown Aromatic	21.43	SVOA	12,000 JN
16.	---	Unknown Chloro Aro	21.50	SVOA	2,200 JN
17.	---	Unknown Chloro Aro	21.74	SVOA	9,100 JN
18.	---	Unknown Chloro Aro	22.33	SVOA	8,500 JN
19.	---	Unknown	28.99	SVOA	980 JN
20.	---	Unknown	29.18	SVOA	1,200 JN

FORM-1-B
00838

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment
Data Release Authorized: GWB
Reported: 12/04/97

Sample No: 9742 4943
WR-SD-SD084-1000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.8%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	48 U
111-44-4	Bis-(2-Chloroethyl) Ether	95 U
95-57-8	2-Chlorophenol	48 U
541-73-1	1,3-Dichlorobenzene	48 U
106-46-7	1,4-Dichlorobenzene	48 U
100-51-6	Benzyl Alcohol	48 U
95-50-1	1,2-Dichlorobenzene	48 U
95-48-7	2-Methylphenol	48 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	48 U
106-44-5	**4-Methylphenol**	**140**
621-64-7	N-Nitroso-Di-N-Propylamine	95 U
67-72-1	Hexachloroethane	48 U
98-95-3	Nitrobenzene	48 U
78-59-1	Isophorone	48 U
88-75-5	2-Nitrophenol	240 U
105-67-9	2,4-Dimethylphenol	48 U
65-85-0	**Benzoic Acid**	**740**
111-91-1	bis(2-Chloroethoxy) Methane	48 U
120-83-2	2,4-Dichlorophenol	140 U
120-82-1	1,2,4-Trichlorobenzene	48 U
91-20-3	**Naphthalene**	**700**
106-47-8	4-Chloroaniline	140 U
87-68-3	Hexachlorobutadiene	48 U
59-50-7	4-Chloro-3-methylphenol	95 U
91-57-6	**2-Methylnaphthalene**	**300**
77-47-4	Hexachlorocyclopentadiene	240 U J
88-06-2	2,4,6-Trichlorophenol	240 U
95-95-4	2,4,5-Trichlorophenol	240 U
91-58-7	2-Chloronaphthalene	48 U
88-74-4	2-Nitroaniline	240 U
131-11-3	Dimethylphthalate	48 U
208-96-8	**Acenaphthylene**	**70**
99-09-2	3-Nitroaniline	290 U
83-32-9	**Acenaphthene**	**980**
51-28-5	2,4-Dinitrophenol	480 U J
100-02-7	4-Nitrophenol	240 U
132-64-9	**Dibenzofuran**	**440**
606-20-2	2,6-Dinitrotoluene	240 U

FORM-1
00839

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment
Data Release Authorized: AWB
Reported: 12/04/97

Sample No: 9742 4943 WR-SD-SD084-1000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.8%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	240 U
84-66-2	Diethylphthalate	48 U
7005-72-3	4-Chlorophenyl-phenylether	48 U
86-73-7	**Fluorene**	**710**
100-01-6	4-Nitroaniline	240 U
534-52-1	4,6-Dinitro-2-Methylphenol	480 U
86-30-6	N-Nitrosodiphenylamine	48 U
101-55-3	4-Bromophenyl-phenylether	48 U
118-74-1	Hexachlorobenzene	48 U
87-86-5	Pentachlorophenol	240 U
85-01-8	**Phenanthrene**	~~5,200 E~~ 4000 D
86-74-8	**Carbazole**	**56**
120-12-7	**Anthracene**	**710**
84-74-2	Di-n-Butylphthalate	48 U
206-44-0	**Fluoranthene**	**3,800**
129-00-0	**Pyrene**	~~4,200 E~~ 3700 D
85-68-7	Butylbenzylphthalate	48 U
91-94-1	3,3'-Dichlorobenzidine	240 U
56-55-3	**Benzo(a)anthracene**	**990**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**270**
218-01-9	**Chrysene**	**1,600**
117-84-0	Di-n-Octyl phthalate	48 U
205-99-2	**Benzo(b)fluoranthene**	**840**
207-08-9	**Benzo(k)fluoranthene**	**900**
50-32-8	**Benzo(a)pyrene**	**1,300**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**700**
53-70-3	**Dibenz(a,h)anthracene**	**170**
191-24-2	**Benzo(g,h,i)perylene**	**870**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	55.9%	d5-Phenol	56.1%
2-Fluorobiphenyl	58.2%	2-Fluorophenol	60.2%
d14-p-Terphenyl	68.7%	2,4,6-Tribromophenol	73.4%
d4-1,2-Dichlorobenzene	51.7%	d4-2-Chlorophenol	58.2%

FORM-1
00840

JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4943
WR-SD-SD084-1000A

Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: BWB
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.96	SVOA	1,100 JN
2.	90-12-0	Naphthalene, 1-methyl-	13.10	SVOA	1,100 JN
3.	--	Naphthalene, Dimethyl Iso	14.14	SVOA	770 JN
4.	--	Naphthalene, Dimethyl Iso	14.32	SVOA	1,300 JN
5.	--	Naphthalene, Trimethyl Is	15.69	SVOA	770 JN
6.	--	Unknown Aromatic	19.25	SVOA	900 JN
7.	--	Unknown	19.71	SVOA	2,300 JN
8.	--	Unknown	19.95	SVOA	1,000 JN
9.	--	Unknown C16.H14 PNA	20.16	SVOA	680 JN
10.	--	Unknown Aromatic	20.65	SVOA	11,000 JN
11.	--	Unknown Chloro Aro	21.01	SVOA	1,600 JN
12.	--	Unknown Chloro Aro	21.36	SVOA	1,800 JN
13.	--	Unknown PNA	21.59	SVOA	9,500 JN
14.	--	Unknown Chloro Aro	21.89	SVOA	4,400 JN
15.	--	Unknown Chloro Aro	22.46	SVOA	2,900 JN
16.	--	Unknown	24.31	SVOA	1,600 JN
17.	--	Unknown Acid Ester	24.88	SVOA	920 JN
18.	--	Unknown Sterol type	28.74	SVOA	960 JN
19.	--	Unknown	28.84	SVOA	810 JN
20.	--	Unknown	29.42	SVOA	700 JN

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment
Data Release Authorized: RWB
Reported: 12/04/97

Sample No. 9742 4943
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.8%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	240 U
111-44-4	Bis-(2-Chloroethyl) Ether	480 U
95-57-8	2-Chlorophenol	240 U
541-73-1	1,3-Dichlorobenzene	240 U
106-46-7	1,4-Dichlorobenzene	240 U
100-51-6	Benzyl Alcohol	240 U
95-50-1	1,2-Dichlorobenzene	240 U
95-48-7	2-Methylphenol	240 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	240 U
106-44-5	4-Methylphenol	240 U
621-64-7	N-Nitroso-Di-N-Propylamine	480 U
67-72-1	Hexachloroethane	240 U
98-95-3	Nitrobenzene	240 U
78-59-1	Isophorone	240 U
88-75-5	2-Nitrophenol	1,200 U
105-67-9	2,4-Dimethylphenol	240 U
65-85-0	Benzoic Acid	2,400 U
111-91-1	bis(2-Chloroethoxy) Methane	240 U
120-83-2	2,4-Dichlorophenol	710 U
120-82-1	1,2,4-Trichlorobenzene	240 U
91-20-3	**Naphthalene**	**570**
106-47-8	4-Chloroaniline	710 U
87-68-3	Hexachlorobutadiene	240 U
59-50-7	4-Chloro-3-methylphenol	480 U
91-57-6	2-Methylnaphthalene	240 U
77-47-4	Hexachlorocyclopentadiene	1,200 U J
88-06-2	2,4,6-Trichlorophenol	1,200 U
95-95-4	2,4,5-Trichlorophenol	1,200 U
91-58-7	2-Chloronaphthalene	240 U
88-74-4	2-Nitroaniline	1,200 U
131-11-3	Dimethylphthalate	240 U
208-96-8	Acenaphthylene	240 U
99-09-2	3-Nitroaniline	1,400 U
83-32-9	**Acenaphthene**	**770**
51-28-5	2,4-Dinitrophenol	2,400 U J
100-02-7	4-Nitrophenol	1,200 U
132-64-9	**Dibenzofuran**	**340**
606-20-2	2,6-Dinitrotoluene	1,200 U

FORM-1

JMB 1/20/98

1042

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment
Data Release Authorized: DWB
Reported: 12/04/97

Sample No: 9742 4943
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 21.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 47.8%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	1,200 U
84-66-2	Diethylphthalate	240 U
7005-72-3	4-Chlorophenyl-phenylether	240 U
86-73-7	**Fluorene**	**540**
100-01-6	4-Nitroaniline	1,200 U
534-52-1	4,6-Dinitro-2-Methylphenol	2,400 U
86-30-6	N-Nitrosodiphenylamine	240 U
101-55-3	4-Bromophenyl-phenylether	240 U
118-74-1	Hexachlorobenzene	240 U
87-86-5	Pentachlorophenol	1,200 U
85-01-8	**Phenanthrene**	**4,000**
86-74-8	Carbazole	240 U
120-12-7	**Anthracene**	**490**
84-74-2	Di-n-Butylphthalate	240 U
206-44-0	**Fluoranthene**	**3,000**
129-00-0	**Pyrene**	**3,700**
85-68-7	Butylbenzylphthalate	240 U
91-94-1	3,3'-Dichlorobenzidine	1,200 U
56-55-3	**Benzo(a)anthracene**	**760**
117-81-7	bis(2-Ethylhexyl)phthalate	240 U
218-01-9	**Chrysene**	**1,200**
117-84-0	Di-n-Octyl phthalate	240 U
205-99-2	**Benzo(b)fluoranthene**	**660**
207-08-9	**Benzo(k)fluoranthene**	**720**
50-32-8	**Benzo(a)pyrene**	**970**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**660**
53-70-3	Dibenz(a,h)anthracene	240 U
191-24-2	**Benzo(g,h,i)perylene**	**910**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	50.8%	d5-Phenol	56.1%
2-Fluorobiphenyl	50.4%	2-Fluorophenol	51.3%
d14-p-Terphenyl	61.8%	2,4,6-Tribromophenol	57.5%
d4-1,2-Dichlorobenzene	43.0%	d4-2-Chlorophenol	51.6%

FORM-1

1043 JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4943
DILUTION

Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ANB
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.90	SVOA	1,000 J N
2.	90-12-0	Naphthalene, 1-methyl-	13.02	SVOA	1,000 JN
3.	---	Naphthalene, Ethyl Isomer	13.93	SVOA	710 J N
4.	---	Naphthalene, Dimethyl Iso	14.05	SVOA	690 J N
5.	---	Naphthalene, Dimethyl Iso	14.22	SVOA	910 J N
6.	---	Naphthalene, Dimethyl Iso	14.27	SVOA	860 J N
7.	---	Unknown Aromatic	17.17	SVOA	630 J N
8.	132-65-0	Dibenzothiophene	17.66	SVOA	630 JN
9.	---	Unknown C15.H12 PNA	18.95	SVOA	590 J N
10.	---	Unknown Aromatic	19.13	SVOA	790 J N
11.	---	Unknown	19.37	SVOA	560 J N
12.	---	Unknown	20.49	SVOA	17,000 J N
13.	---	Unknown Chloro Aro	20.88	SVOA	1,500 J N
14.	---	Unknown Chloro Aro	21.24	SVOA	1,900 J N
15.	---	Unknown Aromatic	21.43	SVOA	14,000 J N
16.	---	Unknown Chloro Aro	21.48	SVOA	1,000 J N
17.	---	Unknown Chloro Aro	21.73	SVOA	5,100 J N
18.	---	Unknown Chloro Aro	22.32	SVOA	7,200 J N
19.	---	Unknown Aldehyde	22.92	SVOA	3,000 J N
20.	---	Unknown Aromatic	27.36	SVOA	1,500 J N

FORM-1-B
00841

JMB 1/20/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment
Data Release Authorized: GMB
Reported: 12/04/97

Sample No: 9742 4944
WR-SD-SD031-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 20.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.8%
pH: 8.0

CAS Number	Analyte	ug/kg
108-95-2	Phenol	48 U
111-44-4	Bis-(2-Chloroethyl) Ether	96 U
95-57-8	2-Chlorophenol	48 U
541-73-1	1,3-Dichlorobenzene	48 U
106-46-7	1,4-Dichlorobenzene	48 U
100-51-6	Benzyl Alcohol	48 U
95-50-1	1,2-Dichlorobenzene	48 U
95-48-7	2-Methylphenol	48 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	48 U
106-44-5	4-Methylphenol	48 U
621-64-7	N-Nitroso-Di-N-Propylamine	96 U
67-72-1	Hexachloroethane	48 U
98-95-3	Nitrobenzene	48 U
78-59-1	Isophorone	48 U
88-75-5	2-Nitrophenol	240 U
105-67-9	2,4-Dimethylphenol	48 U
65-85-0	Benzoic Acid	480 U
111-91-1	bis(2-Chloroethoxy) Methane	48 U
120-83-2	2,4-Dichlorophenol	140 U
120-82-1	1,2,4-Trichlorobenzene	48 U
91-20-3	**Naphthalene**	**440**
106-47-8	4-Chloroaniline	140 U
87-68-3	Hexachlorobutadiene	48 U
59-50-7	4-Chloro-3-methylphenol	96 U
91-57-6	**2-Methylnaphthalene**	**240**
77-47-4	Hexachlorocyclopentadiene	240 UJ
88-06-2	2,4,6-Trichlorophenol	240 U
95-95-4	2,4,5-Trichlorophenol	240 U
91-58-7	2-Chloronaphthalene	48 U
88-74-4	2-Nitroaniline	240 U
131-11-3	Dimethylphthalate	48 U
208-96-8	Acenaphthylene	48 U
99-09-2	3-Nitroaniline	290 U
83-32-9	**Acenaphthene**	**2,200**
51-28-5	2,4-Dinitrophenol	480 UJ
100-02-7	4-Nitrophenol	240 U
132-64-9	**Dibenzofuran**	**340**
606-20-2	2,6-Dinitrotoluene	240 U

GMB 1/20/98
1089

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment
Data Release Authorized: DNB
Reported: 12/04/97

Sample No: 9742 4944
WR-SD-SD031-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 20.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.8%
pH: 8.0

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	240 U
84-66-2	Diethylphthalate	48 U
7005-72-3	4-Chlorophenyl-phenylether	48 U
86-73-7	**Fluorene**	**830**
100-01-6	4-Nitroaniline	240 U
534-52-1	4,6-Dinitro-2-Methylphenol	480 U
86-30-6	N-Nitrosodiphenylamine	48 U
101-55-3	4-Bromophenyl-phenylether	48 U
118-74-1	Hexachlorobenzene	48 U
87-86-5	Pentachlorophenol	240 U
85-01-8	**Phenanthrene**	~~9,100 E~~ 7600 D
86-74-8	**Carbazole**	**1,800**
120-12-7	**Anthracene**	**1,700**
84-74-2	Di-n-Butylphthalate	48 U
206-44-0	**Fluoranthene**	~~16,000 E~~ 17000 D
129-00-0	**Pyrene**	~~14,000 E~~ 17000 D
85-68-7	Butylbenzylphthalate	48 U
91-94-1	3,3'-Dichlorobenzidine	240 U
56-55-3	**Benzo(a)anthracene**	~~12,000 E~~ 10000 D
117-81-7	**bis(2-Ethylhexyl)phthalate**	420 ~~E~~
218-01-9	**Chrysene**	13,000 ~~E~~ D
117-84-0	Di-n-Octyl phthalate	48 U
205-99-2	**Benzo(b)fluoranthene**	~~19,000 E~~ 14000 D
207-08-9	**Benzo(k)fluoranthene**	~~8,600 E~~ 12000 D
50-32-8	**Benzo(a)pyrene**	~~18,000 E~~ 17000 D
193-39-5	**Indeno(1,2,3-cd)pyrene**	12,000 ~~E~~ D
53-70-3	**Dibenz(a,h)anthracene**	~~5,600 E~~ 4400 D
191-24-2	**Benzo(g,h,i)perylene**	~~11,000 E~~ 12000 D

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	52.7%	d5-Phenol	48.1%
2-Fluorobiphenyl	55.0%	2-Fluorophenol	55.0%
d14-p-Terphenyl	65.0%	2,4,6-Tribromophenol	64.6%
d4-1,2-Dichlorobenzene	48.0%	d4-2-Chlorophenol	52.3%

FORM-1
00846

JMB 1/20/98

1090

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4944
WR-SD-SD031-0000A

Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.97	SVOA	1,000 JN
2.	--	Unknown_C15.H12_PNA	19.01	SVOA	820 JN
3.	--	Unknown_C15.H12_PNA	19.06	SVOA	840 JN
4.	--	Unknown_Aromatic	19.25	SVOA	2,200 JN
5.	--	Unknown_Aromatic	21.56	SVOA	1,600 JN
6.	--	Unknown_C17.H12_PNA	21.60	SVOA	2,400 JN
7.	--	Unknown_C17.H12_PNA	21.72	SVOA	2,500 JN
8.	--	Unknown_C18.H14_PNA	22.46	SVOA	840 JN
9.	--	Benzothiophene_Isomer	22.84	SVOA	1,000 JN
10.	--	Unknown_PNA	22.91	SVOA	1,600 JN
11.	--	Unknown_PNA	23.59	SVOA	1,700 JN
12.	--	Unknown_Aromatic	24.45	SVOA	1,500 JN
13.	--	Unknown_C20.H12_PNA	25.57	SVOA	1,500 JN
14.	--	Unknown_C20.H12_PNA	25.88	SVOA	3,900 JN
15.	--	Unknown_C20.H12_PNA	26.10	SVOA	2,600 JN
16.	--	Unknown_C22.H14_PNA	28.27	SVOA	860 JN
17.	--	Unknown_C22.H14_PNA	28.36	SVOA	1,100 JN
18.	--	Unknown	28.75	SVOA	1,100 JN
19.	--	Unknown_C22.H12_PNA	28.92	SVOA	2,000 JN
20.	--	Unknown	29.44	SVOA	900 JN

FORM-1-B

JMB 1/2019

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment
Data Release Authorized: GWB
Reported: 12/04/97

Sample No.: 9742 4944
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 20.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 47.8%
pH: 8.0

CAS Number	Analyte	ug/kg
108-95-2	Phenol	480 U
111-44-4	Bis-(2-Chloroethyl) Ether	960 U
95-57-8	2-Chlorophenol	480 U
541-73-1	1,3-Dichlorobenzene	480 U
106-46-7	1,4-Dichlorobenzene	480 U
100-51-6	Benzyl Alcohol	480 U
95-50-1	1,2-Dichlorobenzene	480 U
95-48-7	2-Methylphenol	480 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	480 U
106-44-5	4-Methylphenol	480 U
621-64-7	N-Nitroso-Di-N-Propylamine	960 U
67-72-1	Hexachloroethane	480 U
98-95-3	Nitrobenzene	480 U
78-59-1	Isophorone	480 U
88-75-5	2-Nitrophenol	2,400 U
105-67-9	2,4-Dimethylphenol	480 U
65-85-0	Benzoic Acid	4,800 U
111-91-1	bis(2-Chloroethoxy) Methane	480 U
120-83-2	2,4-Dichlorophenol	1,400 U
120-82-1	1,2,4-Trichlorobenzene	480 U
91-20-3	Naphthalene	480 U
106-47-8	4-Chloroaniline	1,400 U
87-68-3	Hexachlorobutadiene	480 U
59-50-7	4-Chloro-3-methylphenol	960 U
91-57-6	2-Methylnaphthalene	480 U
77-47-4	Hexachlorocyclopentadiene	2,400 U J
88-06-2	2,4,6-Trichlorophenol	2,400 U
95-95-4	2,4,5-Trichlorophenol	2,400 U
91-58-7	2-Chloronaphthalene	480 U
88-74-4	2-Nitroaniline	2,400 U
131-11-3	Dimethylphthalate	480 U
208-96-8	Acenaphthylene	480 U
99-09-2	3-Nitroaniline	2,900 U
83-32-9	Acenaphthene	1,800
51-28-5	2,4-Dinitrophenol	4,800 U J
100-02-7	4-Nitrophenol	2,400 U
132-64-9	Dibenzofuran	480 U
606-20-2	2,6-Dinitrotoluene	2,400 U

FORM-1

JMB 1/20/98

1140

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4944
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 20.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 47.8%
pH: 8.0

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	2,400 U
84-66-2	Diethylphthalate	480 U
7005-72-3	4-Chlorophenyl-phenylether	480 U
86-73-7	**Fluorene**	**740**
100-01-6	4-Nitroaniline	2,400 U
534-52-1	4,6-Dinitro-2-Methylphenol	4,800 U
86-30-6	N-Nitrosodiphenylamine	480 U
101-55-3	4-Bromophenyl-phenylether	480 U
118-74-1	Hexachlorobenzene	480 U
87-86-5	Pentachlorophenol	2,400 U
85-01-8	**Phenanthrene**	**7,600**
86-74-8	**Carbazole**	**1,500**
120-12-7	**Anthracene**	**1,500**
84-74-2	Di-n-Butylphthalate	480 U
206-44-0	**Fluoranthene**	**17,000**
129-00-0	**Pyrene**	**17,000**
85-68-7	Butylbenzylphthalate	480 U
91-94-1	3,3'-Dichlorobenzidine	2,400 U
56-55-3	**Benzo(a)anthracene**	**10,000**
117-81-7	bis(2-Ethylhexyl)phthalate	480 U
218-01-9	**Chrysene**	**13,000**
117-84-0	Di-n-Octyl phthalate	480 U
205-99-2	**Benzo(b)fluoranthene**	**14,000**
207-08-9	**Benzo(k)fluoranthene**	**12,000**
50-32-8	**Benzo(a)pyrene**	**17,000**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**12,000**
53-70-3	**Dibenz(a,h)anthracene**	**4,400**
191-24-2	**Benzo(g,h,i)perylene**	**12,000**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	47.2%	d5-Phenol	58.7%
2-Fluorobiphenyl	55.6%	2-Fluorophenol	56.5%
d14-p-Terphenyl	63.2%	2,4,6-Tribromophenol	58.7%
d4-1,2-Dichlorobenzene	45.2%	d4-2-Chlorophenol	53.1%

FORM-1

JMB 1/20/98

1141

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4944
DILUTION

Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/17/97
Date Received: 10/20/97

Data Release Authorized: BWB
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.91	SVOA	1,600 J N
2.	---	Unknown_Aromatic	19.13	SVOA	1,400 J N
3.	---	Unknown_Aromatic	21.42	SVOA	1,700 J N
4.	---	Unknown_C17.H12_PNA	21.45	SVOA	3,600 J N
5.	---	Unknown_C17.H12_PNA	21.58	SVOA	3,300 J N
6.	---	Unknown_C17.H12_PNA	21.66	SVOA	1,100 J N
7.	---	Benzothiophene_Isomer	22.70	SVOA	1,500 J N
8.	---	Unknown_C18.H12_PNA	22.76	SVOA	1,600 J N
9.	---	Unknown_C18.H12_PNA	23.43	SVOA	2,200 J N
10.	---	Unknown_C19.H14_PNA	23.99	SVOA	1,200 J N
11.	---	Unknown_Aromatic	24.20	SVOA	1,800 J N
12.	---	Unknown	24.26	SVOA	970 J N
13.	---	Unknown	24.29	SVOA	1,700 J N
14.	---	Unknown_Aldehyde	25.01	SVOA	2,200 J N
15.	---	Unknown_C20.H12_PNA	25.40	SVOA	4,200 J N
16.	---	Unknown_C20.H12_PNA	25.69	SVOA	13,000 J N
17.	---	Unknown_C20.H12_PNA	25.92	SVOA	5,600 J N
18.	---	Unknown_PNA	26.15	SVOA	2,800 J N
19.	---	Unknown_C22.H14_PNA	27.57	SVOA	1,800 J N
20.	---	Unknown_C22.H12_PNA	28.62	SVOA	2,800 J N

FORM-1-B
00850

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203I
LIMS ID: 97-19733
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4945 WR-SD-SD023-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.0%
pH: 7.0

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**26**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	97 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**84**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**53**
77-47-4	Hexachlorocyclopentadiene	97 UJ
88-06-2	2,4,6-Trichlorophenol	97 U
95-95-4	2,4,5-Trichlorophenol	97 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	97 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**130**
51-28-5	2,4-Dinitrophenol	190 UJ
100-02-7	4-Nitrophenol	97 U
132-64-9	**Dibenzofuran**	**42**
606-20-2	2,6-Dinitrotoluene	97 U

FORM-1
00851

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203I
LIMS ID: 97-19733
Matrix: Sediment
Data Release Authorized: JMB
Reported: 12/04/97

Sample No: 9742 4945
WR- SD- SD023-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/17/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.0%
pH: 7.0

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	97 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**91**
100-01-6	4-Nitroaniline	97 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	97 U
85-01-8	**Phenanthrene**	**670**
86-74-8	**Carbazole**	**99**
120-12-7	**Anthracene**	**150**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**1,000**
129-00-0	**Pyrene**	**1,100**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	97 U
56-55-3	**Benzo(a)anthracene**	**600**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**380** B
218-01-9	**Chrysene**	**860**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**830**
207-08-9	**Benzo(k)fluoranthene**	**670**
50-32-8	**Benzo(a)pyrene**	**960**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**580**
53-70-3	**Dibenz(a,h)anthracene**	**200**
191-24-2	**Benzo(g,h,i)perylene**	**560**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	37.4%	d5-Phenol	37.8%
2-Fluorobiphenyl	44.3%	2-Fluorophenol	42.3%
d14-p-Terphenyl	50.9%	2,4,6-Tribromophenol	49.5%
d4-1,2-Dichlorobenzene	36.6%	d4-2-Chlorophenol	39.5%

FORM 1

00852

JMB 1/20/98

1188

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4945
WR-SD-SD023-0000A

Lab Sample ID: U203I
LIMS ID: 97-19733
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Data Release Authorized: ONB
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.96	SVOA	190 J N
2.	--	Unknown	10.73	SVOA	180 J N
3.	--	Unknown	13.07	SVOA	170 J N
4.	--	Unknown	13.83	SVOA	190 J N
5.	--	Unknown_Aromatic	14.31	SVOA	120 J N
6.	--	Unknown_Aromatic	14.55	SVOA	120 J N
7.	--	Unknown	14.79	SVOA	170 J N
8.	--	Unknown	15.79	SVOA	210 J N
9.	--	Unknown	16.44	SVOA	170 J N
10.	--	Unknown	16.99	SVOA	160 J N
11.	--	Unknown_Aromatic	19.25	SVOA	220 J N
12.	--	Unknown	19.71	SVOA	250 J N
13.	--	Unknown_Aromatic	21.56	SVOA	360 J N
14.	--	Unknown_Sterol_type	26.99	SVOA	160 J N
15.	--	Unknown_Sterol_type	27.57	SVOA	330 J N
16.	--	Unknown_Sterol_type	28.76	SVOA	200 J N
17.	--	Unknown	28.92	SVOA	420 J N
18.	--	Unknown	29.04	SVOA	130 J N
19.	--	Unknown	29.26	SVOA	280 J N
20.	--	Unknown	29.45	SVOA	260 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment
Data Release Authorized: ANB
Reported: 12/04/97

Sample No: 9742 4947
WR-SD-SD072-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 9.51 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.7%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	110 U
111-44-4	Bis-(2-Chloroethyl) Ether	210 U
95-57-8	2-Chlorophenol	110 U
541-73-1	1,3-Dichlorobenzene	110 U
106-46-7	1,4-Dichlorobenzene	110 U
100-51-6	Benzyl Alcohol	110 U
95-50-1	1,2-Dichlorobenzene	110 U
95-48-7	2-Methylphenol	110 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	110 U
106-44-5	4-Methylphenol	110 U
621-64-7	N-Nitroso-Di-N-Propylamine	210 U
67-72-1	Hexachloroethane	110 U
98-95-3	Nitrobenzene	110 U
78-59-1	Isophorone	110 U
88-75-5	2-Nitrophenol	530 U
105-67-9	2,4-Dimethylphenol	110 U
65-85-0	Benzoic Acid	1,100 U
111-91-1	bis(2-Chloroethoxy) Methane	110 U
120-83-2	2,4-Dichlorophenol	320 U
120-82-1	1,2,4-Trichlorobenzene	110 U
91-20-3	**Naphthalene**	**200**
106-47-8	4-Chloroaniline	320 U
87-68-3	Hexachlorobutadiene	110 U
59-50-7	4-Chloro-3-methylphenol	210 U
91-57-6	**2-Methylnaphthalene**	**980**
77-47-4	Hexachlorocyclopentadiene	530 UJ
88-06-2	2,4,6-Trichlorophenol	530 U
95-95-4	2,4,5-Trichlorophenol	530 U
91-58-7	2-Chloronaphthalene	110 U
88-74-4	2-Nitroaniline	530 U
131-11-3	Dimethylphthalate	110 U
208-96-8	Acenaphthylene	110 U
99-09-2	3-Nitroaniline	630 U
83-32-9	**Acenaphthene**	**7,200**
51-28-5	2,4-Dinitrophenol	1,100 UJ
100-02-7	4-Nitrophenol	530 U
132-64-9	**Dibenzofuran**	**3,600**
606-20-2	2,6-Dinitrotoluene	530 U

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment
Data Release Authorized: *CWB*
Reported: 12/04/97

Sample No: 9742 4947
WR-SD-SD072-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 9.51 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.7%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	530 U
84-66-2	Diethylphthalate	110 U
7005-72-3	4-Chlorophenyl-phenylether	110 U
86-73-7	**Fluorene**	**5,000**
100-01-6	4-Nitroaniline	530 U
534-52-1	4,6-Dinitro-2-Methylphenol	1,100 U
86-30-6	N-Nitrosodiphenylamine	110 U
101-55-3	4-Bromophenyl-phenylether	110 U
118-74-1	Hexachlorobenzene	110 U
87-86-5	Pentachlorophenol	530 U
85-01-8	**Phenanthrene**	~~19,000 E~~ 16000 D
86-74-8	**Carbazole**	**660**
120-12-7	**Anthracene**	**3,100**
84-74-2	Di-n-Butylphthalate	110 U
206-44-0	**Fluoranthene**	~~8,700 E~~ 7200 D
129-00-0	**Pyrene**	**6,600**
85-68-7	Butylbenzylphthalate	110 U
91-94-1	3,3'-Dichlorobenzidine	530 U
56-55-3	**Benzo(a)anthracene**	**1,100**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**260** ~~J~~
218-01-9	**Chrysene**	**1,500**
117-84-0	Di-n-Octyl phthalate	110 U
205-99-2	**Benzo(b)fluoranthene**	**460**
207-08-9	**Benzo(k)fluoranthene**	**690**
50-32-8	**Benzo(a)pyrene**	**660**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**310**
53-70-3	Dibenz(a,h)anthracene	110 U
191-24-2	**Benzo(g,h,i)perylene**	**340**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	43.1%	d5-Phenol	37.7%
2-Fluorobiphenyl	51.4%	2-Fluorophenol	45.5%
d14-p-Terphenyl	65.3%	2,4,6-Tribromophenol	64.4%
d4-1,2-Dichlorobenzene	36.6%	d4-2-Chlorophenol	40.5%

FORM-1
00853

JMB 1/20/98
1240

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4947
WR-SD-SD072-0000A

Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: AKP
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	79-34-5	Ethane,_1,1,2,2-tetrachlo	7.54	SVOA	540 JN~~B~~
2.	--	Unknown	8.97	SVOA	680 JN
3.	--	Naphthalene,_Ethyl_Isomer	14.02	SVOA	630 JN
4.	--	Naphthalene,_Dimethyl_Iso	14.14	SVOA	680 JN
5.	--	Naphthalene,_Dimethyl_Iso	14.32	SVOA	1,400 JN
6.	--	Naphthalene,_Dimethyl_Iso	14.73	SVOA	460 JN
7.	--	Unknown_PNA	16.29	SVOA	890 JN
8.	--	Unknown_Alkane_+_C.E.	16.36	SVOA	1,100 JN
9.	--	Unknown_Aromatic	16.44	SVOA	690 JN
10.	--	Unknown_C14.H12_PNA	17.21	SVOA	500 JN
11.	--	Unknown_Aromatic	17.56	SVOA	600 JN
12.	132-65-0	Dibenzothiophene	17.77	SVOA	830 JN
13.	--	Unknown_C15.H12_PNA	19.01	SVOA	750 JN
14.	--	Unknown_C15.H12_PNA	19.06	SVOA	880 JN
15.	--	Unknown_Aromatic	19.25	SVOA	2,400 JN
16.	--	Unknown_Alkane_+_C.E.	20.21	SVOA	540 JN
17.	--	Unknown_Aromatic	20.59	SVOA	960 JN
18.	--	Unknown_C17.H12_PNA	21.58	SVOA	1,900 JN
19.	--	Unknown_C17.H12_PNA	21.71	SVOA	1,200 JN
20.	--	Unknown	25.15	SVOA	1,600 JN

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment
Data Release Authorized: BKB
Reported: 12/04/97

Sample No: 9742 4947
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 9.51 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 37.7%
pH: 7.4

CAS Number	Analyte	ug/kg
108-95-2	Phenol	530 U
111-44-4	Bis-(2-Chloroethyl) Ether	1,100 U
95-57-8	2-Chlorophenol	530 U
541-73-1	1,3-Dichlorobenzene	530 U
106-46-7	1,4-Dichlorobenzene	530 U
100-51-6	Benzyl Alcohol	530 U
95-50-1	1,2-Dichlorobenzene	530 U
95-48-7	2-Methylphenol	530 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	530 U
106-44-5	4-Methylphenol	530 U
621-64-7	N-Nitroso-Di-N-Propylamine	1,100 U
67-72-1	Hexachloroethane	530 U
98-95-3	Nitrobenzene	530 U
78-59-1	Isophorone	530 U
88-75-5	2-Nitrophenol	2,600 U
105-67-9	2,4-Dimethylphenol	530 U
65-85-0	Benzoic Acid	5,300 U
111-91-1	bis(2-Chloroethoxy) Methane	530 U
120-83-2	2,4-Dichlorophenol	1,600 U
120-82-1	1,2,4-Trichlorobenzene	530 U
91-20-3	Naphthalene	530 U
106-47-8	4-Chloroaniline	1,600 U
87-68-3	Hexachlorobutadiene	530 U
59-50-7	4-Chloro-3-methylphenol	1,100 U
91-57-6	**2-Methylnaphthalene**	**670**
77-47-4	Hexachlorocyclopentadiene	2,600 U J
88-06-2	2,4,6-Trichlorophenol	2,600 U
95-95-4	2,4,5-Trichlorophenol	2,600 U
91-58-7	2-Chloronaphthalene	530 U
88-74-4	2-Nitroaniline	2,600 U
131-11-3	Dimethylphthalate	530 U
208-96-8	Acenaphthylene	530 U
99-09-2	3-Nitroaniline	3,200 U
83-32-9	**Acenaphthene**	**6,000**
51-28-5	2,4-Dinitrophenol	5,300 U J
100-02-7	4-Nitrophenol	2,600 U
132-64-9	**Dibenzofuran**	**3,100**
606-20-2	2,6-Dinitrotoluene	2,600 U

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4947
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 9.51 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 37.7%
pH: 7.4

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	2,600 U
84-66-2	Diethylphthalate	530 U
7005-72-3	4-Chlorophenyl-phenylether	530 U
86-73-7	**Fluorene**	**4,100**
100-01-6	4-Nitroaniline	2,600 U
534-52-1	4,6-Dinitro-2-Methylphenol	5,300 U
86-30-6	N-Nitrosodiphenylamine	530 U
101-55-3	4-Bromophenyl-phenylether	530 U
118-74-1	Hexachlorobenzene	530 U
87-86-5	Pentachlorophenol	2,600 U
85-01-8	**Phenanthrene**	**16,000**
86-74-8	**Carbazole**	**580**
120-12-7	**Anthracene**	**2,300**
84-74-2	Di-n-Butylphthalate	530 U
206-44-0	**Fluoranthene**	**7,200**
129-00-0	**Pyrene**	**5,500**
85-68-7	Butylbenzylphthalate	530 U
91-94-1	3,3'-Dichlorobenzidine	2,600 U
56-55-3	**Benzo(a)anthracene**	**1,100**
117-81-7	bis(2-Ethylhexyl)phthalate	530 U
218-01-9	**Chrysene**	**1,300**
117-84-0	Di-n-Octyl phthalate	530 U
205-99-2	Benzo(b)fluoranthene	530 U
207-08-9	**Benzo(k)fluoranthene**	**550**
50-32-8	**Benzo(a)pyrene**	**560**
193-39-5	Indeno(1,2,3-cd)pyrene	530 U
53-70-3	Dibenz(a,h)anthracene	530 U
191-24-2	Benzo(g,h,i)perylene	530 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	37.8%	d5-Phenol	49.1%
2-Fluorobiphenyl	48.2%	2-Fluorophenol	42.8%
d14-p-Terphenyl	60.8%	2,4,6-Tribromophenol	58.9%
d4-1,2-Dichlorobenzene	35.0%	d4-2-Chlorophenol	43.1%

JMB 1/20/98

FORM-1

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4947
DILUTION

Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [illegible]
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.90	SVOA	1,500 J N
2.	---	Unknown Hydrocarbon	16.27	SVOA	1,200 J N
3.	---	Unknown Aromatic	19.13	SVOA	1,600 J N
4.	---	Unknown Hydrocarbon	22.91	SVOA	1,100 J N
5.	---	Unknown Aldehyde	25.00	SVOA	1,300 J N
6.	---	Unknown Hydrocarbon	25.31	SVOA	1,900 J N
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

FORM-1-B
00859

JMB 1/20/98
1309

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203L
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4948 WR-SD-SD081-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 28.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
108-95-2	Phenol	35 U
111-44-4	Bis-(2-Chloroethyl) Ether	69 U
95-57-8	2-Chlorophenol	35 U
541-73-1	1,3-Dichlorobenzene	35 U
106-46-7	1,4-Dichlorobenzene	35 U
100-51-6	Benzyl Alcohol	35 U
95-50-1	1,2-Dichlorobenzene	35 U
95-48-7	2-Methylphenol	35 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	35 U
106-44-5	**4-Methylphenol**	**130**
621-64-7	N-Nitroso-Di-N-Propylamine	69 U
67-72-1	Hexachloroethane	35 U
98-95-3	Nitrobenzene	35 U
78-59-1	Isophorone	35 U
88-75-5	2-Nitrophenol	170 U
105-67-9	2,4-Dimethylphenol	35 U
65-85-0	**Benzoic Acid**	**1,000**
111-91-1	bis(2-Chloroethoxy) Methane	35 U
120-83-2	**2,4-Dichlorophenol**	**140**
120-82-1	1,2,4-Trichlorobenzene	35 U
91-20-3	**Naphthalene**	**240**
106-47-8	4-Chloroaniline	100 U
87-68-3	Hexachlorobutadiene	35 U
59-50-7	4-Chloro-3-methylphenol	69 U
91-57-6	**2-Methylnaphthalene**	**89**
77-47-4	Hexachlorocyclopentadiene	170 U J
88-06-2	2,4,6-Trichlorophenol	170 U
95-95-4	2,4,5-Trichlorophenol	170 U
91-58-7	2-Chloronaphthalene	35 U
88-74-4	2-Nitroaniline	170 U
131-11-3	Dimethylphthalate	35 U
208-96-8	**Acenaphthylene**	**60**
99-09-2	3-Nitroaniline	210 U
83-32-9	**Acenaphthene**	**180**
51-28-5	2,4-Dinitrophenol	350 U J
100-02-7	4-Nitrophenol	170 U
132-64-9	**Dibenzofuran**	**46**
606-20-2	2,6-Dinitrotoluene	170 U

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203L
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized: GNB
Reported: 12/04/97

Sample No: 9742 4948
WR-SD-SD081-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 28.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	170 U
84-66-2	Diethylphthalate	35 U
7005-72-3	4-Chlorophenyl-phenylether	35 U
86-73-7	**Fluorene**	**110**
100-01-6	4-Nitroaniline	170 U
534-52-1	4,6-Dinitro-2-Methylphenol	350 U
86-30-6	N-Nitrosodiphenylamine	35 U
101-55-3	4-Bromophenyl-phenylether	35 U
118-74-1	Hexachlorobenzene	35 U
87-86-5	Pentachlorophenol	170 U
85-01-8	**Phenanthrene**	**1,400**
86-74-8	Carbazole	35 U
120-12-7	**Anthracene**	**170**
84-74-2	Di-n-Butylphthalate	35 U
206-44-0	**Fluoranthene**	**1,600**
129-00-0	**Pyrene**	**2,100**
85-68-7	Butylbenzylphthalate	35 U
91-94-1	3,3'-Dichlorobenzidine	170 U
56-55-3	**Benzo(a)anthracene**	**390**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**86** JUJ
218-01-9	**Chrysene**	**540**
117-84-0	Di-n-Octyl phthalate	35 U
205-99-2	**Benzo(b)fluoranthene**	**440**
207-08-9	**Benzo(k)fluoranthene**	**380**
50-32-8	**Benzo(a)pyrene**	**710**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**420**
53-70-3	**Dibenz(a,h)anthracene**	**82**
191-24-2	**Benzo(g,h,i)perylene**	**590**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	39.3%	d5-Phenol	40.6%
2-Fluorobiphenyl	53.9%	2-Fluorophenol	50.3%
d14-p-Terphenyl	64.1%	2,4,6-Tribromophenol	65.5%
d4-1,2-Dichlorobenzene	40.3%	d4-2-Chlorophenol	46.5%

FORM-1
00861

JMB 1/20/98

1319

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4948
WR-SD-SD081-0000A

Lab Sample ID: U203L
LIMS ID: 97-19736
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: DMB
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	19.14	SVOA	740 JN
2.	--	Unknown_Aromatic	19.25	SVOA	540 JN
3.	--	Unknown	19.43	SVOA	1,000 JN
4.	--	Unknown	19.72	SVOA	4,100 JN
5.	--	Unknown	20.17	SVOA	440 JN
6.	--	Unknown_Aromatic	20.59	SVOA	710 JN
7.	--	Unknown_Aromatic	21.59	SVOA	7,500 JN
8.	--	Unknown	22.51	SVOA	340 JN
9.	--	Unknown	22.85	SVOA	580 JN
10.	--	Unknown	23.00	SVOA	360 JN
11.	--	Unknown_Acid_Ester	23.67	SVOA	560 JN
12.	--	Unknown_Cycloalkane	24.34	SVOA	1,500 JN
13.	--	Unknown_Acid_Ester	24.89	SVOA	560 JN
14.	--	Unknown_Aldehyde	25.16	SVOA	350 JN
15.	--	Unknown_Sterol_type	28.77	SVOA	1,900 JN
16.	--	Unknown	28.87	SVOA	1,000 JN
17.	--	Unknown	29.03	SVOA	540 JN
18.	--	Unknown	29.11	SVOA	350 JN
19.	--	Unknown	29.25	SVOA	560 JN
20.	--	Unknown	29.44	SVOA	760 JN

FORM-1-B
0086

JMB 1/20/98

1348

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4949
WR-SD-SD117-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.8%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	**Phenol**	**19**
111-44-4	Bis-(2-Chloroethyl) Ether	38 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**370**
621-64-7	N-Nitroso-Di-N-Propylamine	38 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	95 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	57 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**110**
106-47-8	4-Chloroaniline	57 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	38 U
91-57-6	**2-Methylnaphthalene**	**56**
77-47-4	Hexachlorocyclopentadiene	95 UJ
88-06-2	2,4,6-Trichlorophenol	95 U
95-95-4	2,4,5-Trichlorophenol	95 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	95 U
131-11-3	Dimethylphthalate	19 U
208-96-8	**Acenaphthylene**	**34**
99-09-2	3-Nitroaniline	110 U
83-32-9	**Acenaphthene**	**35**
51-28-5	2,4-Dinitrophenol	190 UJ
100-02-7	4-Nitrophenol	95 U
132-64-9	Dibenzofuran	19 U
606-20-2	2,6-Dinitrotoluene	95 U

JMB 1/20/98

1372

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4949
WR-SD-SD117-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/24/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.8%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	95 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**34**
100-01-6	4-Nitroaniline	95 U
534-52-1	4,6-Dinitro-2-Methylphenol	190 U
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	95 U
85-01-8	**Phenanthrene**	**260**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**48**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**240**
129-00-0	**Pyrene**	**300**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	95 U
56-55-3	**Benzo(a)anthracene**	**63**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**90** ~~B~~ UJ
218-01-9	**Chrysene**	**98**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**52**
207-08-9	**Benzo(k)fluoranthene**	**66**
50-32-8	**Benzo(a)pyrene**	**73**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**43**
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	**Benzo(g,h,i)perylene**	**63**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	45.8%	d5-Phenol	49.9%
2-Fluorobiphenyl	48.1%	2-Fluorophenol	52.2%
d14-p-Terphenyl	59.2%	2,4,6-Tribromophenol	54.5%
d4-1,2-Dichlorobenzene	42.4%	d4-2-Chlorophenol	52.7%

FORM-1

00864

MMB 1/20/98

1373

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4949
WR-SD-SD117-0000A

Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [illegible]
Reported: 12/23/97

Date Analyzed: 11/24/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.98	SVOA	1,100 JN
2.	--	Unknown_Cycloalkane	9.54	SVOA	470 JN
3.	--	Unknown	10.74	SVOA	610 JN
4.	--	Unknown_Cycloalkane	11.39	SVOA	750 JN
5.	--	Unknown	12.20	SVOA	660 JN
6.	--	Unknown	12.82	SVOA	680 JN
7.	--	Unknown	13.08	SVOA	1,100 JN
8.	--	Unknown_Cycloalkane	13.29	SVOA	290 JN
9.	--	Unknown_Cycloalkane	13.84	SVOA	500 JN
10.	--	Unknown	15.46	SVOA	350 JN
11.	--	Naphthalene,_Trimethyl_Is	15.68	SVOA	340 JN
12.	--	Unknown_C15.H12_PNA	19.03	SVOA	400 JN
13.	--	Unknown_Aromatic	19.26	SVOA	320 JN
14.	--	Unknown	19.72	SVOA	320 JN
15.	--	Unknown	20.66	SVOA	430 JN
16.	--	Unknown_Aromatic	21.56	SVOA	410 JN
17.	--	Unknown	28.87	SVOA	350 JN
18.	--	Unknown	29.05	SVOA	330 JN
19.	--	Unknown	29.26	SVOA	300 JN
20.	--	Unknown	29.46	SVOA	430 JN

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4951
WR-SD-SD120-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.0%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**45**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**97**
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**110**
77-47-4	Hexachlorocyclopentadiene	98 U J
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**380**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	**Dibenzofuran**	**200**
606-20-2	2,6-Dinitrotoluene	98 U

JMB 1/20/98

1423

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4951
WR-SD-SD120-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.0%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**300**
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	~~1,600 E~~ 1300 D
86-74-8	Carbazole	20 U
120-12-7	**Anthracene**	**160**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**1,100**
129-00-0	**Pyrene**	**1,000**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**190**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**300** ✗
218-01-9	**Chrysene**	**310**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**120**
207-08-9	**Benzo(k)fluoranthene**	**130**
50-32-8	**Benzo(a)pyrene**	**100**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**42**
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	**Benzo(g,h,i)perylene**	**46**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	39.6%	d5-Phenol	37.7%
2-Fluorobiphenyl	46.9%	2-Fluorophenol	42.7%
d14-p-Terphenyl	57.5%	2,4,6-Tribromophenol	56.1%
d4-1,2-Dichlorobenzene	35.6%	d4-2-Chlorophenol	38.0%

JMB 1/20/98

FORM-1

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4951
WR-SD-SD120-0000A

Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [signature]
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.97	SVOA	390 J N
2.	90-12-0	Naphthalene, 1-methyl-	13.10	SVOA	190 JN
3.	--	Unknown	13.84	SVOA	170 J N
4.	--	Unknown	17.27	SVOA	220 J N
5.	--	Unknown	17.56	SVOA	370 J N
6.	--	Unknown_C15.H12_PNA	19.02	SVOA	460 J N
7.	--	Unknown_Organic_Acid	19.16	SVOA	460 J N
8.	--	Unknown_Aromatic	19.25	SVOA	380 J N
9.	--	Unknown	19.71	SVOA	280 J N
10.	--	Unknown	20.59	SVOA	250 J N
11.	--	Unknown_Aromatic	21.56	SVOA	470 J N
12.	--	Unknown	24.48	SVOA	330 J N
13.	--	Unknown_Aldehyde	25.16	SVOA	570 J N
14.	--	Unknown	26.67	SVOA	260 J N
15.	--	Unknown	26.77	SVOA	200 J N
16.	--	Unknown	27.57	SVOA	230 J N
17.	--	Unknown	28.87	SVOA	750 J N
18.	--	Unknown	29.05	SVOA	590 J N
19.	--	Unknown	29.26	SVOA	720 J N
20.	--	Unknown	29.45	SVOA	870 J N

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment
Data Release Authorized: CWB
Reported: 12/04/97

Sample No: 9742 4951
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 49.0%
pH: 7.6

CAS Number	Analyte	ug/kg
108-95-2	Phenol	98 U
111-44-4	Bis-(2-Chloroethyl) Ether	200 U
95-57-8	2-Chlorophenol	98 U
541-73-1	1,3-Dichlorobenzene	98 U
106-46-7	1,4-Dichlorobenzene	98 U
100-51-6	Benzyl Alcohol	98 U
95-50-1	1,2-Dichlorobenzene	98 U
95-48-7	2-Methylphenol	98 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	98 U
106-44-5	4-Methylphenol	98 U
621-64-7	N-Nitroso-Di-N-Propylamine	200 U
67-72-1	Hexachloroethane	98 U
98-95-3	Nitrobenzene	98 U
78-59-1	Isophorone	98 U
88-75-5	2-Nitrophenol	490 U
105-67-9	2,4-Dimethylphenol	98 U
65-85-0	Benzoic Acid	980 U
111-91-1	bis(2-Chloroethoxy) Methane	98 U
120-83-2	2,4-Dichlorophenol	290 U
120-82-1	1,2,4-Trichlorobenzene	98 U
91-20-3	Naphthalene	98 U
106-47-8	4-Chloroaniline	290 U
87-68-3	Hexachlorobutadiene	98 U
59-50-7	4-Chloro-3-methylphenol	200 U
91-57-6	2-Methylnaphthalene	98 U
77-47-4	Hexachlorocyclopentadiene	490 U J
88-06-2	2,4,6-Trichlorophenol	490 U
95-95-4	2,4,5-Trichlorophenol	490 U
91-58-7	2-Chloronaphthalene	98 U
88-74-4	2-Nitroaniline	490 U
131-11-3	Dimethylphthalate	98 U
208-96-8	Acenaphthylene	98 U
99-09-2	3-Nitroaniline	590 U
83-32-9	**Acenaphthene**	**330**
51-28-5	2,4-Dinitrophenol	980 U J
100-02-7	4-Nitrophenol	490 U
132-64-9	**Dibenzofuran**	**180**
606-20-2	2,6-Dinitrotoluene	490 U

FORM-1
00863

JMB 1/20/98

1472

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment
Data Release Authorized: BMB
Reported: 12/04/97

Sample No: 9742 4951
DILUTION

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 49.0%
pH: 7.6

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	490 U
84-66-2	Diethylphthalate	98 U
7005-72-3	4-Chlorophenyl-phenylether	98 U
86-73-7	**Fluorene**	**260**
100-01-6	4-Nitroaniline	490 U
534-52-1	4,6-Dinitro-2-Methylphenol	980 U
86-30-6	N-Nitrosodiphenylamine	98 U
101-55-3	4-Bromophenyl-phenylether	98 U
118-74-1	Hexachlorobenzene	98 U
87-86-5	Pentachlorophenol	490 U
85-01-8	**Phenanthrene**	**1,300**
86-74-8	Carbazole	98 U
120-12-7	**Anthracene**	**120**
84-74-2	Di-n-Butylphthalate	98 U
206-44-0	**Fluoranthene**	**1,000**
129-00-0	**Pyrene**	**850**
85-68-7	Butylbenzylphthalate	98 U
91-94-1	3,3'-Dichlorobenzidine	490 U
56-55-3	**Benzo(a)anthracene**	**180**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**220** BUS
218-01-9	**Chrysene**	**260**
117-84-0	Di-n-Octyl phthalate	98 U
205-99-2	**Benzo(b)fluoranthene**	**120**
207-08-9	**Benzo(k)fluoranthene**	**100**
50-32-8	Benzo(a)pyrene	98 U
193-39-5	Indeno(1,2,3-cd)pyrene	98 U
53-70-3	Dibenz(a,h)anthracene	98 U
191-24-2	Benzo(g,h,i)perylene	98 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	34.8%	d5-Phenol	44.0%
2-Fluorobiphenyl	46.0%	2-Fluorophenol	39.9%
d14-p-Terphenyl	53.0%	2,4,6-Tribromophenol	48.7%
d4-1,2-Dichlorobenzene	33.6%	d4-2-Chlorophenol	38.4%

JMB 12/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4951
DILUTION

Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project:
1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ANP
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	---	Unknown	8.90	SVOA	700 J N
2.	---	Unknown Hydrocarbon	13.48	SVOA	240 J N
3.	---	Unknown Hydrocarbon	16.27	SVOA	400 J N
4.	---	Unknown Hydrocarbon	16.81	SVOA	640 J N
5.	---	Unknown Aromatic	19.13	SVOA	400 J N
6.	---	Unknown	19.58	SVOA	200 J N
7.	---	Unknown Aromatic	21.43	SVOA	930 J N
8.	---	Unknown Hydrocarbon	23.80	SVOA	320 J N
9.	---	Unknown	24.32	SVOA	680 J N
10.	---	Unknown	25.02	SVOA	1,300 J N
11.	---	Unknown	26.14	SVOA	400 J N
12.	---	Unknown	26.60	SVOA	370 J N
13.	---	Unknown Aromatic	27.37	SVOA	430 J N
14.	---	Unknown	28.52	SVOA	1,600 J N
15.	---	Unknown	28.63	SVOA	870 J N
16.	---	Unknown	28.80	SVOA	1,300 J N
17.	---	Unknown	28.86	SVOA	540 J N
18.	---	Unknown	29.00	SVOA	1,200 J N
19.	---	Unknown	29.19	SVOA	1,700 J N
20.	---	Unknown	29.42	SVOA	650 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203Q
LIMS ID: 97-19741
Matrix: Sediment
Data Release Authorized: BMB
Reported: 12/04/97

Sample No: 9742 4953 WIR-SD-SD071-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.0%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**34**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	98 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	59 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**96**
106-47-8	4-Chloroaniline	59 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	**2-Methylnaphthalene**	**65**
77-47-4	Hexachlorocyclopentadiene	98 U J
88-06-2	2,4,6-Trichlorophenol	98 U
95-95-4	2,4,5-Trichlorophenol	98 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	98 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**220**
51-28-5	2,4-Dinitrophenol	200 U J
100-02-7	4-Nitrophenol	98 U
132-64-9	**Dibenzofuran**	**100**
606-20-2	2,6-Dinitrotoluene	98 U

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203Q
LIMS ID: 97-19741
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4953
WR-SD-SD071-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.0%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	98 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**160**
100-01-6	4-Nitroaniline	98 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	98 U
85-01-8	**Phenanthrene**	**440**
86-74-8	Carbazole	20 U
120-12-7	**Anthracene**	**75**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**440**
129-00-0	**Pyrene**	**430**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	98 U
56-55-3	**Benzo(a)anthracene**	**130**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**210** ~~B~~
218-01-9	**Chrysene**	**210**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**150**
207-08-9	**Benzo(k)fluoranthene**	**92**
50-32-8	**Benzo(a)pyrene**	**100**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**56**
53-70-3	**Dibenz(a,h)anthracene**	**23**
191-24-2	**Benzo(g,h,i)perylene**	**64**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	42.7%	d5-Phenol	48.1%
2-Fluorobiphenyl	47.0%	2-Fluorophenol	43.8%
d14-p-Terphenyl	57.4%	2,4,6-Tribromophenol	57.5%
d4-1,2-Dichlorobenzene	34.8%	d4-2-Chlorophenol	43.4%

FORM-1

JMB 1/20/98

1517

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4953 WR-SD-SD071-0000A

Lab Sample ID: U203Q
LIMS ID: 97-19741
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ANB
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.92	SVOA	700 J N
2.	--	Unknown	17.17	SVOA	130 J N
3.	--	Unknown	18.46	SVOA	190 J N
4.	--	Unknown Organic Acid	19.06	SVOA	260 J N
5.	--	Unknown Aromatic	19.14	SVOA	180 J N
6.	--	Unknown	19.38	SVOA	320 J N
7.	--	Unknown	19.61	SVOA	500 J N
8.	--	Unknown Aromatic	20.49	SVOA	220 J N
9.	--	Unknown	20.75	SVOA	430 J N
10.	--	Unknown Aromatic	21.45	SVOA	3,200 J N
11.	--	Unknown	22.76	SVOA	670 J N
12.	--	Unknown	23.07	SVOA	320 J N
13.	--	Unknown	24.34	SVOA	350 J N
14.	--	Unknown Aldehyde	25.03	SVOA	850 J N
15.	--	Unknown	28.66	SVOA	1,200 J N
16.	--	Unknown	28.84	SVOA	1,100 J N
17.	--	Unknown	28.90	SVOA	570 J N
18.	--	Unknown	29.03	SVOA	1,100 J N
19.	--	Unknown	29.23	SVOA	1,500 J N
20.	--	Unknown	29.45	SVOA	630 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203R
LIMS ID: 97-19742
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4954
WR-SD-SD135-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.3%
pH: 7.2

CAS Number	Analyte	ug/kg
108-95-2	Phenol	20 U
111-44-4	Bis-(2-Chloroethyl) Ether	40 U
95-57-8	2-Chlorophenol	20 U
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	20 U
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20 U
106-44-5	**4-Methylphenol**	**290**
621-64-7	N-Nitroso-Di-N-Propylamine	40 U
67-72-1	Hexachloroethane	20 U
98-95-3	Nitrobenzene	20 U
78-59-1	Isophorone	20 U
88-75-5	2-Nitrophenol	100 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	**Benzoic Acid**	**380**
111-91-1	bis(2-Chloroethoxy) Methane	20 U
120-83-2	2,4-Dichlorophenol	60 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	**Naphthalene**	**84**
106-47-8	4-Chloroaniline	60 U
87-68-3	Hexachlorobutadiene	20 U
59-50-7	4-Chloro-3-methylphenol	40 U
91-57-6	**2-Methylnaphthalene**	**54**
77-47-4	Hexachlorocyclopentadiene	100 UJ
88-06-2	2,4,6-Trichlorophenol	100 U
95-95-4	2,4,5-Trichlorophenol	100 U
91-58-7	2-Chloronaphthalene	20 U
88-74-4	2-Nitroaniline	100 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**28**
51-28-5	2,4-Dinitrophenol	200 UJ
100-02-7	4-Nitrophenol	100 U
132-64-9	Dibenzofuran	20 U
606-20-2	2,6-Dinitrotoluene	100 U

FORM-1
00875

JMB 1/20/98

1567

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203R
LIMS ID: 97-19742
Matrix: Sediment
Data Release Authorized: DWB
Reported: 12/04/97

Sample No: 9742 4954
WR-SD-SD135-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/25/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.3%
pH: 7.2

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	100 U
84-66-2	Diethylphthalate	20 U
7005-72-3	4-Chlorophenyl-phenylether	20 U
86-73-7	**Fluorene**	**29**
100-01-6	4-Nitroaniline	100 U
534-52-1	4,6-Dinitro-2-Methylphenol	200 U
86-30-6	N-Nitrosodiphenylamine	20 U
101-55-3	4-Bromophenyl-phenylether	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	100 U
85-01-8	**Phenanthrene**	**200**
86-74-8	Carbazole	20 U
120-12-7	**Anthracene**	**27**
84-74-2	Di-n-Butylphthalate	20 U
206-44-0	**Fluoranthene**	**200**
129-00-0	**Pyrene**	**240**
85-68-7	Butylbenzylphthalate	20 U
91-94-1	3,3'-Dichlorobenzidine	100 U
56-55-3	**Benzo(a)anthracene**	**57**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**270** B
218-01-9	**Chrysene**	**95**
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	**Benzo(b)fluoranthene**	**64**
207-08-9	**Benzo(k)fluoranthene**	**54**
50-32-8	**Benzo(a)pyrene**	**72**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**47**
53-70-3	Dibenz(a,h)anthracene	20 U
191-24-2	**Benzo(g,h,i)perylene**	**65**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	50.8%	d5-Phenol	55.4%
2-Fluorobiphenyl	51.1%	2-Fluorophenol	50.2%
d14-p-Terphenyl	56.4%	2,4,6-Tribromophenol	59.7%
d4-1,2-Dichlorobenzene	43.1%	d4-2-Chlorophenol	50.6%

FORM-1

JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4954
WR-SD- SD135-0000A

Lab Sample ID: U203R
LIMS ID: 97-19742
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: AMB
Reported: 12/23/97

Date Analyzed: 11/25/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.93	SVOA	890 J N
2.	--	Unknown_Alkyl_Benzene	10.98	SVOA	190 J N
3.	--	Unknown_Cycloalkane	11.32	SVOA	180 J N
4.	--	Unknown_Cycloalkane	11.84	SVOA	180 J N
5.	--	Unknown_Cycloalkane	11.99	SVOA	200 J N
6.	--	Unknown_Aromatic	12.43	SVOA	380 J N
7.	--	Unknown	12.74	SVOA	200 J N
8.	--	Unknown	13.76	SVOA	220 J N
9.	--	Unknown_Organic_Acid	19.06	SVOA	360 J N
10.	--	Unknown	19.13	SVOA	250 J N
11.	--	Unknown	19.62	SVOA	280 J N
12.	--	Unknown	19.73	SVOA	180 J N
13.	--	Unknown_Aromatic	21.45	SVOA	420 J N
14.	--	Unknown	25.04	SVOA	480 J N
15.	--	Unknown	28.67	SVOA	400 J N
16.	--	Unknown	28.84	SVOA	600 J N
17.	--	Unknown	28.92	SVOA	250 J N
18.	--	Unknown	29.05	SVOA	490 J N
19.	--	Unknown	29.24	SVOA	860 J N
20.	--	Unknown	29.47	SVOA	320 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment
Data Release Authorized: [illegible]
Reported: 12/04/97

Sample No: 9742 4956
WR-SD-SD150-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/26/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 35.1%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**92**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	96 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**480**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	Naphthalene	19 U
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	2-Methylnaphthalene	19 U
77-47-4	Hexachlorocyclopentadiene	96 U J
88-06-2	2,4,6-Trichlorophenol	96 U
95-95-4	2,4,5-Trichlorophenol	96 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	96 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	Acenaphthene	19 U
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	96 U
132-64-9	Dibenzofuran	19 U
606-20-2	2,6-Dinitrotoluene	96 U

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4956
WR-SD-SD150-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/26/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 35.1%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	96 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	Fluorene	19 U
100-01-6	4-Nitroaniline	96 U J
534-52-1	4,6-Dinitro-2-Methylphenol	190 U J
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	**Phenanthrene**	**59**
86-74-8	Carbazole	19 U
120-12-7	**Anthracene**	**24**
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**69**
129-00-0	**Pyrene**	**88**
85-68-7	Butylbenzylphthalate	19 U
91-94-1	3,3'-Dichlorobenzidine	96 U
56-55-3	**Benzo(a)anthracene**	**30**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**160 ~~B~~ UJ**
218-01-9	**Chrysene**	**50**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**35**
207-08-9	**Benzo(k)fluoranthene**	**34**
50-32-8	**Benzo(a)pyrene**	**34**
193-39-5	Indeno(1,2,3-cd)pyrene	19 U J
53-70-3	Dibenz(a,h)anthracene	19 U J
191-24-2	**Benzo(g,h,i)perylene**	**26**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	48.4%	d5-Phenol	53.5%
2-Fluorobiphenyl	55.4%	2-Fluorophenol	51.9%
d14-p-Terphenyl	68.3%	2,4,6-Tribromophenol	63.0%
d4-1,2-Dichlorobenzene	42.5%	d4-2-Chlorophenol	50.2%

161 JMB 1/20/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4956 WR-SD-SD150-0000A

Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: AWB
Reported: 12/23/97

Date Analyzed: 11/26/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.88	SVOA	570 J N
2.	--	Unknown_Aromatic	12.46	SVOA	270 J N
3.	--	Unknown	18.87	SVOA	110 J N
4.	--	Unknown_Organic_Acid	19.00	SVOA	140 J N
5.	--	Unknown_Aromatic	21.38	SVOA	190 J N
6.	--	Unknown	22.68	SVOA	260 J N
7.	--	Unknown_Aromatic	23.01	SVOA	360 J N
8.	--	Unknown	24.29	SVOA	200 J N
9.	--	Unknown_Aldehyde	24.98	SVOA	300 J N
10.	--	Unknown	25.34	SVOA	140 J N
11.	--	Unknown_Sterol_type	25.44	SVOA	110 J N
12.	--	Unknown_Aldehyde	26.11	SVOA	110 J N
13.	--	Unknown	26.47	SVOA	150 J N
14.	--	Unknown	27.32	SVOA	170 J N
15.	--	Unknown_Sterol_type	28.58	SVOA	260 J N
16.	--	Unknown	28.75	SVOA	260 J N
17.	--	Unknown	28.82	SVOA	130 J N
18.	--	Unknown	28.94	SVOA	260 J N
19.	--	Unknown	29.14	SVOA	370 J N
20.	--	Unknown	29.36	SVOA	160 J N

FORM-1-B

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203V
LIMS ID: 97-19746
Matrix: Sediment
Data Release Authorized: OVR
Reported: 12/04/97

Sample No: 9742 4958
WR-SD-SD143-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/03/97
Instrument: nt1
GPC Cleanup: NO

Sample Amount: 1.10 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.5%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	910 U
111-44-4	Bis-(2-Chloroethyl) Ether	1,800 U
95-57-8	2-Chlorophenol	910 U
541-73-1	1,3-Dichlorobenzene	910 U
106-46-7	1,4-Dichlorobenzene	910 U
100-51-6	Benzyl Alcohol	910 U
95-50-1	1,2-Dichlorobenzene	910 U
95-48-7	2-Methylphenol	910 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	910 U
106-44-5	4-Methylphenol	910 U
621-64-7	N-Nitroso-Di-N-Propylamine	1,800 U
67-72-1	Hexachloroethane	910 U
98-95-3	Nitrobenzene	910 U
78-59-1	Isophorone	910 U
88-75-5	2-Nitrophenol	4,500 U
105-67-9	2,4-Dimethylphenol	910 U
65-85-0	Benzoic Acid	9,100 U
111-91-1	bis(2-Chloroethoxy) Methane	910 U
120-83-2	2,4-Dichlorophenol	2,700 U
120-82-1	1,2,4-Trichlorobenzene	910 U
91-20-3	Naphthalene	910 U
106-47-8	4-Chloroaniline	2,700 U
87-68-3	Hexachlorobutadiene	910 U
59-50-7	4-Chloro-3-methylphenol	1,800 U
91-57-6	**2-Methylnaphthalene**	**2,000**
77-47-4	Hexachlorocyclopentadiene	4,500 U
88-06-2	2,4,6-Trichlorophenol	4,500 U
95-95-4	2,4,5-Trichlorophenol	4,500 U
91-58-7	2-Chloronaphthalene	910 U
88-74-4	2-Nitroaniline	4,500 U
131-11-3	Dimethylphthalate	910 U
208-96-8	Acenaphthylene	910 U
99-09-2	3-Nitroaniline	5,500 U
83-32-9	Acenaphthene	910 U
51-28-5	2,4-Dinitrophenol	9,100 U J
100-02-7	4-Nitrophenol	4,500 U
132-64-9	Dibenzofuran	910 U
606-20-2	2,6-Dinitrotoluene	4,500 U

1662 JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203V
LIMS ID: 97-19746
Matrix: Sediment
Data Release Authorized: BVB
Reported: 12/04/97

Sample No: 9742 4958 WR-SD-SD143-0000A

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/03/97
Instrument: nt1
GPC Cleanup: NO

Sample Amount: 1.10 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.5%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	4,500 U
84-66-2	Diethylphthalate	910 U
7005-72-3	4-Chlorophenyl-phenylether	910 U
86-73-7	Fluorene	910 U
100-01-6	4-Nitroaniline	4,500 UJ
534-52-1	4,6-Dinitro-2-Methylphenol	9,100 UJ
86-30-6	N-Nitrosodiphenylamine	910 U
101-55-3	4-Bromophenyl-phenylether	910 U
118-74-1	Hexachlorobenzene	910 U
87-86-5	Pentachlorophenol	4,500 U
85-01-8	**Phenanthrene**	**1,100**
86-74-8	Carbazole	910 UJ
120-12-7	Anthracene	910 U
84-74-2	Di-n-Butylphthalate	910 U
206-44-0	Fluoranthene	910 U
129-00-0	Pyrene	910 U
85-68-7	Butylbenzylphthalate	910 U
91-94-1	3,3'-Dichlorobenzidine	4,500 U
56-55-3	Benzo(a)anthracene	910 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**5,000**
218-01-9	Chrysene	910 U
117-84-0	Di-n-Octyl phthalate	910 U
205-99-2	Benzo(b)fluoranthene	910 U
207-08-9	Benzo(k)fluoranthene	910 U
50-32-8	Benzo(a)pyrene	910 U
193-39-5	Indeno(1,2,3-cd)pyrene	910 U
53-70-3	Dibenz(a,h)anthracene	910 U
191-24-2	Benzo(g,h,i)perylene	910 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	35.0%	d5-Phenol	35.4%
2-Fluorobiphenyl	36.8%	2-Fluorophenol	35.8%
d14-p-Terphenyl	41.5%	2,4,6-Tribromophenol	41.0%
d4-1,2-Dichlorobenzene	32.6%	d4-2-Chlorophenol	35.2%

JMB 1/20/98

1663

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4960

WR-SD-SD151-0000A

Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment
Data Release Authorized:
Reported: 12/16/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.5

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.97 U J
319-85-7	beta-BHC	0.97 U J
319-86-8	delta-BHC	0.97 U J
58-89-9	gamma-BHC (Lindane)	0.97 U J
76-44-8	Heptachlor	0.97 U J
309-00-2	Aldrin	0.97 U J
1024-57-3	Heptachlor Epoxide	0.97 U J
959-98-8	Endosulfan I	0.97 U J
60-57-1	Dieldrin	1.9 U J
72-55-9	4,4'-DDE	2.3 ~~U~~ UI J
72-20-8	Endrin	1.9 U J
33213-65-9	Endosulfan II	1.9 U J
72-54-8	4,4'-DDD	3.5 ~~U~~ UI J
1031-07-8	Endosulfan Sulfate	1.9 U J
50-29-3	4,4'-DDT	7.2 ~~U~~ UI J
72-43-5	Methoxychlor	9.7 U J
53494-70-5	Endrin Ketone	2.2 ~~U~~ UI J
7421-93-4	Endrin Aldehyde	1.9 U J
57-74-9	gamma Chlordane	0.97 U J
5103-71-9	alpha Chlordane	0.97 U J
8001-35-2	Toxaphene	97 U J
12674-11-2	Aroclor 1016	19 U J
53469-21-9	Aroclor 1242	19 U J
12672-29-6	Aroclor 1248	19 U J
11097-69-1	**Aroclor 1254**	**70 J**
11096-82-5	**Aroclor 1260**	**31 J**
11104-28-2	Aroclor 1221	39 U J
11141-16-5	Aroclor 1232	19 U J

Pesticide Surrogate Recovery

Decachlorobiphenyl	35.5%
Tetrachlorometaxylene	26.8%

JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4958
WR-SD- SD143-0000A

Lab Sample ID: U203V
LIMS ID: 97-19746
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: MB
Reported: 12/23/97

Date Analyzed: 12/03/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown_Cycloalkane	11.57	SVOA	4,200 J N
2.	90-12-0	Naphthalene,_1-methyl-	12.58	SVOA	9,700 JN
3.	--	Unknown_Cycloalkane	12.78	SVOA	4,100 J N
4.	--	Unknown_PNA_+_C.E.	13.33	SVOA	3,600 J N
5.	--	Naphthalene,_Dimethyl_Iso	13.63	SVOA	4,000 J N
6.	--	Naphthalene,_Dimethyl_Iso	13.80	SVOA	4,800 J N
7.	--	Naphthalene,_Dimethyl_Iso	13.84	SVOA	3,300 J N
8.	--	Naphthalene,_Trimethyl_Is	14.96	SVOA	4,800 J N
9.	--	Unknown	15.63	SVOA	3,300 J N
10.	--	Unknown_Aromatic	16.74	SVOA	3,400 J N
11.	--	Unknown_C15.H12_PNA	18.51	SVOA	3,100 J N
12.	--	Unknown_Aromatic	20.05	SVOA	9,400 J N
13.	--	Unknown	20.99	SVOA	4,600 J N
14.	--	Unknown	23.82	SVOA	7,100 J N
15.	--	Unknown	24.35	SVOA	5,800 J N
16.	--	Unknown	24.61	SVOA	12,000 J N
17.	--	Unknown	24.75	SVOA	7,600 J N
18.	--	Unknown	24.82	SVOA	12,000 J N
19.	--	Unknown_Sterol_type	26.35	SVOA	7,500 J N
20.	--	Unknown_Aromatic	26.87	SVOA	11,000 J N

MB 1/20/98

1672

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment
Data Release Authorized: BWB
Reported: 12/04/97

Sample No: 9742 4960
WR-SD-SD151-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/26/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.5

CAS Number	Analyte	ug/kg
108-95-2	Phenol	19 U
111-44-4	Bis-(2-Chloroethyl) Ether	39 U
95-57-8	2-Chlorophenol	19 U
541-73-1	1,3-Dichlorobenzene	19 U
106-46-7	1,4-Dichlorobenzene	19 U
100-51-6	Benzyl Alcohol	19 U
95-50-1	1,2-Dichlorobenzene	19 U
95-48-7	2-Methylphenol	19 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	19 U
106-44-5	**4-Methylphenol**	**46**
621-64-7	N-Nitroso-Di-N-Propylamine	39 U
67-72-1	Hexachloroethane	19 U
98-95-3	Nitrobenzene	19 U
78-59-1	Isophorone	19 U
88-75-5	2-Nitrophenol	97 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	**Benzoic Acid**	**380**
111-91-1	bis(2-Chloroethoxy) Methane	19 U
120-83-2	2,4-Dichlorophenol	58 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	**Naphthalene**	**30**
106-47-8	4-Chloroaniline	58 U
87-68-3	Hexachlorobutadiene	19 U
59-50-7	4-Chloro-3-methylphenol	39 U
91-57-6	2-Methylnaphthalene	19 U
77-47-4	Hexachlorocyclopentadiene	97 U J
88-06-2	2,4,6-Trichlorophenol	97 U
95-95-4	2,4,5-Trichlorophenol	97 U
91-58-7	2-Chloronaphthalene	19 U
88-74-4	2-Nitroaniline	97 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
99-09-2	3-Nitroaniline	120 U
83-32-9	**Acenaphthene**	**21**
51-28-5	2,4-Dinitrophenol	190 U J
100-02-7	4-Nitrophenol	97 U
132-64-9	Dibenzofuran	19 U
606-20-2	2,6-Dinitrotoluene	97 U

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment
Data Release Authorized: BNB
Reported: 12/04/97

Sample No: 9742 4960 WR-SD-SD151-0000A
QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/26/97
Instrument: nt1
GPC Cleanup: YES

Sample Amount: 51.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.5

CAS Number	Analyte	ug/kg
121-14-2	2,4-Dinitrotoluene	97 U
84-66-2	Diethylphthalate	19 U
7005-72-3	4-Chlorophenyl-phenylether	19 U
86-73-7	**Fluorene**	**22**
100-01-6	4-Nitroaniline	97 U J
534-52-1	4,6-Dinitro-2-Methylphenol	190 U J
86-30-6	N-Nitrosodiphenylamine	19 U
101-55-3	4-Bromophenyl-phenylether	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	97 U
85-01-8	**Phenanthrene**	**99**
86-74-8	Carbazole	19 U
120-12-7	Anthracene	19 U
84-74-2	Di-n-Butylphthalate	19 U
206-44-0	**Fluoranthene**	**130**
129-00-0	**Pyrene**	**150**
85-68-7	**Butylbenzylphthalate**	**47**
91-94-1	3,3'-Dichlorobenzidine	97 U
56-55-3	**Benzo(a)anthracene**	**38**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**210** ~~B~~
218-01-9	**Chrysene**	**64**
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	**Benzo(b)fluoranthene**	**58**
207-08-9	**Benzo(k)fluoranthene**	**36**
50-32-8	**Benzo(a)pyrene**	**38**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**24** J
53-70-3	Dibenz(a,h)anthracene	19 U J
191-24-2	**Benzo(g,h,i)perylene**	**32**

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	49.1%	d5-Phenol	53.4%
2-Fluorobiphenyl	55.9%	2-Fluorophenol	52.9%
d14-p-Terphenyl	66.1%	2,4,6-Tribromophenol	41.1%
d4-1,2-Dichlorobenzene	45.5%	d4-2-Chlorophenol	51.0%

FORM-1

1697 JME 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Compounds

Sample No: 9742 4960
WR-SD-SD151-0000A

Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ONP
Reported: 12/23/97

Date Analyzed: 11/26/97

	CAS Number	Tentative Identification	RT	Fraction	ug/kg
1.	--	Unknown	8.89	SVOA	940 J N
2.	--	Unknown_Aromatic	12.46	SVOA	350 J N
3.	--	Unknown	17.93	SVOA	140 J N
4.	--	Unknown	18.89	SVOA	330 J N
5.	--	Unknown_Organic_Acid	19.03	SVOA	260 J N
6.	--	Unknown	19.55	SVOA	130 J N
7.	--	Unknown_Aromatic	21.38	SVOA	670 J N
8.	--	Unknown	24.30	SVOA	610 J N
9.	--	Unknown_Aldehyde	24.98	SVOA	840 J N
10.	--	Unknown_Cycloalkane	25.34	SVOA	400 J N
11.	--	Unknown_Aldehyde	26.11	SVOA	340 J N
12.	--	Unknown	26.47	SVOA	550 J N
13.	--	Unknown_Sterol_type	27.05	SVOA	320 J N
14.	--	Unknown_Sterol_type	27.12	SVOA	320 J N
15.	--	Unknown_Sterol_type	28.59	SVOA	900 J N
16.	--	Unknown	28.77	SVOA	1,000 J N
17.	--	Unknown	28.83	SVOA	600 J N
18.	--	Unknown	28.96	SVOA	1,100 J N
19.	--	Unknown	29.16	SVOA	1,800 J N
20.	--	Unknown	29.37	SVOA	570 J N

JMB 1/20/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4937

WR-SD-SD092-0000A

Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment
Data Release Authorized:
Reported: 11/26/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 0.53 g-dry-wt
Final Extract Volume: 40 mL
Dilution Factor: 1:10
Percent Moisture: 46.6%
pH: 7.5

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	3,800 U
319-85-7	beta-BHC	3,800 U
319-86-8	delta-BHC	3,800 U J
58-89-9	gamma-BHC (Lindane)	3,800 U
76-44-8	Heptachlor	3,800 U
309-00-2	Aldrin	3,800 U
1024-57-3	Heptachlor Epoxide	3,800 U
959-98-8	Endosulfan I	3,800 U
60-57-1	Dieldrin	7,500 U
72-55-9	4,4'-DDE	7,500 U
72-20-8	Endrin	7,500 U
33213-65-9	Endosulfan II	7,500 U
72-54-8	**4,4'-DDD**	**29,000**
1031-07-8	Endosulfan Sulfate	7,500 U J
50-29-3	**4,4'-DDT**	**22,000**
72-43-5	Methoxychlor	38,000 U
53494-70-5	Endrin Ketone	7,500 U J
7421-93-4	Endrin Aldehyde	7,500 U
57-74-9	gamma Chlordane	3,800 U
5103-71-9	alpha Chlordane	3,800 U J
8001-35-2	Toxaphene	380,000 U
12674-11-2	Aroclor 1016	75,000 U
53469-21-9	Aroclor 1242	75,000 U
12672-29-6	Aroclor 1248	75,000 U
11097-69-1	Aroclor 1254	75,000 U
11096-82-5	Aroclor 1260	75,000 U
11104-28-2	Aroclor 1221	150,000 U
11141-16-5	Aroclor 1232	75,000 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	60.0%
Tetrachlorometaxylene	77.5%

MMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4943

WR-SD-SD084-1000A

Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment
Data Release Authorized:
Reported: 11/26/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 2.61 g-dry-wt
Final Extract Volume: 40 mL
Dilution Factor: 1:10
Percent Moisture: 47.8%
pH: 7.4

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	770 U
319-85-7	beta-BHC	770 U
319-86-8	delta-BHC	770 U J
58-89-9	gamma-BHC (Lindane)	770 U
76-44-8	Heptachlor	770 U
309-00-2	Aldrin	770 U
1024-57-3	Heptachlor Epoxide	770 U
959-98-8	Endosulfan I	770 U
60-57-1	Dieldrin	1,500 U
72-55-9	4,4'-DDE	1,500 U
72-20-8	Endrin	1,500 U
33213-65-9	Endosulfan II	1,500 U
72-54-8	**4,4'-DDD**	**5,800**
1031-07-8	Endosulfan Sulfate	1,500 U J
50-29-3	**4,4'-DDT**	**2,000**
72-43-5	Methoxychlor	7,700 U
53494-70-5	Endrin Ketone	1,500 U J
7421-93-4	Endrin Aldehyde	1,500 U
57-74-9	gamma Chlordane	770 U
5103-71-9	alpha Chlordane	770 U J
8001-35-2	Toxaphene	77,000 U
12674-11-2	Aroclor 1016	15,000 U
53469-21-9	Aroclor 1242	15,000 U
12672-29-6	Aroclor 1248	15,000 U
11097-69-1	Aroclor 1254	15,000 U
11096-82-5	Aroclor 1260	15,000 U
11104-28-2	Aroclor 1221	31,000 U
11141-16-5	Aroclor 1232	15,000 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	60.0%
Tetrachlorometaxylene	77.5%

FORM 1

196

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4947

WR-SD-SD072-0000A

Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment
Data Release Authorized:
Reported: 12/16/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 53.0 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 37.7%
pH: 7.4

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.94 U
319-85-7	beta-BHC	0.94 U
319-86-8	delta-BHC	0.94 UJ
58-89-9	gamma-BHC (Lindane)	0.94 U
76-44-8	Heptachlor	0.94 U
309-00-2	Aldrin	0.94 U
1024-57-3	Heptachlor Epoxide	0.94 U
959-98-8	Endosulfan I	0.94 U
60-57-1	Dieldrin	1.9 U
72-55-9	**4,4'-DDE**	**5.5**
72-20-8	Endrin	2.7 ~~U~~UI
33213-65-9	Endosulfan II	1.9 U
72-54-8	**4,4'-DDD**	**16**
1031-07-8	Endosulfan Sulfate	1.9 UJ
50-29-3	**4,4'-DDT**	**17**
72-43-5	Methoxychlor	9.4 U
53494-70-5	Endrin Ketone	3.1 ~~U~~UIJ
7421-93-4	Endrin Aldehyde	1.9 U
57-74-9	gamma Chlordane	1.1 ~~U~~UI
5103-71-9	alpha Chlordane	0.94 UJ
8001-35-2	Toxaphene	94 U
12674-11-2	Aroclor 1016	19 U
53469-21-9	Aroclor 1242	19 U
12672-29-6	Aroclor 1248	19 U
11097-69-1	**Aroclor 1254**	**57**
11096-82-5	Aroclor 1260	50 ~~U~~UI
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	45.8%
Tetrachlorometaxylene	33.2%

FORM-1

JMB 1-12-198

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4948
REANALYSIS WR-SD-SD081-0000A

Lab Sample ID: U203L-RE
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/11/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.96 U
319-85-7	beta-BHC	0.96 U
319-86-8	delta-BHC	0.96 U
58-89-9	gamma-BHC (Lindane)	0.96 U
76-44-8	Heptachlor	0.96 U
309-00-2	Aldrin	0.96 U
1024-57-3	Heptachlor Epoxide	0.96 U
959-98-8	Endosulfan I	0.96 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	5.4 ~~U~~ I
72-20-8	Endrin	1.9 U
33213-65-9	Endosulfan II	1.9 U
72-54-8	**4,4'-DDD**	~~50 E~~ 82 D
1031-07-8	Endosulfan Sulfate	1.9 U
50-29-3	**4,4'-DDT**	~~29 E~~ 48 D
72-43-5	Methoxychlor	9.6 U
53494-70-5	Endrin Ketone	1.9 U
7421-93-4	Endrin Aldehyde	1.9 U
57-74-9	gamma Chlordane	0.96 U
5103-71-9	alpha Chlordane	0.96 U
8001-35-2	Toxaphene	96 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	47.8%
Tetrachlorometaxylene	48.8%

FORM-1

00891

JMB 1/20/98

209

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4948
REANALYSIS

Lab Sample ID: U203L-RE
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized: @
Reported: 12/17/97

QC Report No: U203-REGL, LLC
Project: 1001-006
Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/11/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.96 U
319-85-7	beta-BHC	0.96 U
319-86-8	delta-BHC	0.96 U
58-89-9	gamma-BHC (Lindane)	0.96 U
76-44-8	Heptachlor	0.96 U
309-00-2	Aldrin	0.96 U
1024-57-3	Heptachlor Epoxide	0.96 U
959-98-8	Endosulfan I	0.96 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	5.4 ~~J~~ UI
72-20-8	Endrin	1.9 U
33213-65-9	Endosulfan II	1.9 U
72-54-8	**4,4'-DDD**	~~50 EB~~ 82 D
1031-07-8	Endosulfan Sulfate	1.9 U
50-29-3	**4,4'-DDT**	~~29 EB~~ 48 D
72-43-5	Methoxychlor	9.6 U
53494-70-5	Endrin Ketone	1.9 U
7421-93-4	Endrin Aldehyde	1.9 U
57-74-9	gamma Chlordane	0.96 U
5103-71-9	alpha Chlordane	0.96 U
8001-35-2	Toxaphene	96 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	47.8%
Tetrachlorometaxylene	48.8%

FORM-1

210
mB 1/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: **9742 4948**
Reextract-DL

Lab Sample ID: U203LREDL
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized:
Reported: 12/17/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/16/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:10
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	9.6 U
319-85-7	beta-BHC	9.6 U
319-86-8	delta-BHC	9.6 U
58-89-9	gamma-BHC (Lindane)	9.6 U
76-44-8	Heptachlor	9.6 U
309-00-2	Aldrin	9.6 U
1024-57-3	Heptachlor Epoxide	9.6 U
959-98-8	Endosulfan I	9.6 U
60-57-1	Dieldrin	19 U
72-55-9	4,4'-DDE	19 U
72-20-8	Endrin	19 U
33213-65-9	Endosulfan II	19 U
72-54-8	**4,4'-DDD**	**82**
1031-07-8	Endosulfan Sulfate	19 U
50-29-3	**4,4'-DDT**	**48**
72-43-5	Methoxychlor	96 U
53494-70-5	Endrin Ketone	19 U
7421-93-4	Endrin Aldehyde	19 U
57-74-9	gamma Chlordane	9.6 U
5103-71-9	alpha Chlordane	9.6 U
8001-35-2	Toxaphene	960 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	110%

FORM-1

JMB 1/20/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: **9742 4948**
Reextract-DL

Lab Sample ID: U203LREDL
LIMS ID: 97-19736
Matrix: Sediment
Data Release Authorized: @
Reported: 12/17/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 12/02/97
Date analyzed: 12/16/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:10
Percent Moisture: 42.4%
pH: 7.1

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	9.6 U
319-85-7	beta-BHC	9.6 U
319-86-8	delta-BHC	9.6 U
58-89-9	gamma-BHC (Lindane)	9.6 U
76-44-8	Heptachlor	9.6 U
309-00-2	Aldrin	9.6 U
1024-57-3	Heptachlor Epoxide	9.6 U
959-98-8	Endosulfan I	9.6 U
60-57-1	Dieldrin	19 U
72-55-9	4,4'-DDE	19 U
72-20-8	Endrin	19 U
33213-65-9	Endosulfan II	19 U
72-54-8	**4,4'-DDD**	**82 B**
1031-07-8	Endosulfan Sulfate	19 U
50-29-3	**4,4'-DDT**	**48 B**
72-43-5	Methoxychlor	96 U
53494-70-5	Endrin Ketone	19 U
7421-93-4	Endrin Aldehyde	19 U
57-74-9	gamma Chlordane	9.6 U
5103-71-9	alpha Chlordane	9.6 U
8001-35-2	Toxaphene	960 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	110%

FORM-1

219

MMB 1-12-98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4949
WR-SD-SD117-0000A

Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment
Data Release Authorized:
Reported: 12/16/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 52.4 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 41.8%
pH: 7.6

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.95 U
319-85-7	beta-BHC	0.95 U
319-86-8	delta-BHC	0.95 U J
58-89-9	gamma-BHC (Lindane)	0.95 U
76-44-8	Heptachlor	0.95 U
309-00-2	Aldrin	0.95 U
1024-57-3	Heptachlor Epoxide	0.95 U
959-98-8	Endosulfan I	0.95 U
60-57-1	Dieldrin	1.9 U
72-55-9	**4,4'-DDE**	**5.2**
72-20-8	Endrin	1.9 U
33213-65-9	Endosulfan II	1.9 U
72-54-8	**4,4'-DDD**	**20**
1031-07-8	Endosulfan Sulfate	1.9 U J
50-29-3	**4,4'-DDT**	**22**
72-43-5	Methoxychlor	9.5 U
53494-70-5	Endrin Ketone	1.9 U J
7421-93-4	Endrin Aldehyde	1.9 U
57-74-9	gamma Chlordane	0.95 U
5103-71-9	alpha Chlordane	0.95 U J
8001-35-2	Toxaphene	95 U
12674-11-2	Aroclor 1016	19 U
53469-21-9	Aroclor 1242	19 U
12672-29-6	Aroclor 1248	19 U
11097-69-1	**Aroclor 1254**	**72**
11096-82-5	Aroclor 1260	70 XUI
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	41.0%
Tetrachlorometaxylene	32.2%

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 9742 4956

WR-SD-SD150-0000A

Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment
Data Release Authorized: pk
Reported: 11/26/97

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Date extracted: 10/30/97
Date analyzed: 11/18/97
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 52.0 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1:1
Percent Moisture: 35.1%
pH: 7.5

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	0.96 U
319-85-7	beta-BHC	0.96 U
319-86-8	delta-BHC	0.96 U J
58-89-9	gamma-BHC (Lindane)	0.96 U
76-44-8	Heptachlor	0.96 U
309-00-2	Aldrin	0.96 U
1024-57-3	Heptachlor Epoxide	0.96 U
959-98-8	Endosulfan I	0.96 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	1.9 U
72-20-8	Endrin	1.9 U
33213-65-9	Endosulfan II	1.9 U
72-54-8	4,4'-DDD	1.9 U
1031-07-8	Endosulfan Sulfate	1.9 U J
50-29-3	**4,4'-DDT**	**4.4**
72-43-5	Methoxychlor	9.6 U
53494-70-5	Endrin Ketone	4.9 XUI J
7421-93-4	Endrin Aldehyde	1.9 U
57-74-9	gamma Chlordane	0.96 U
5103-71-9	alpha Chlordane	0.96 U J
8001-35-2	Toxaphene	96 U
12674-11-2	Aroclor 1016	19 U
53469-21-9	Aroclor 1242	19 U
12672-29-6	Aroclor 1248	19 U
11097-69-1	**Aroclor 1254**	**23**
11096-82-5	**Aroclor 1260**	**25**
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	38.0%
Tetrachlorometaxylene	33.0%

FORM-1

234
gmB 1/20/98

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MEMORANDUM

DATE: 11 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Pesticides and PCBs
SDG No: V044
Site: Willamette River

WORK ASSIGNMENT NO: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AACB

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of one sample, SDG V044, collected from the Willamette River has been completed. The sediment sample was analyzed at low level for pesticides and PCBs by Analytical Resources, Inc. The sample was numbered:

97424918

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1-05, February 1994).

1. Timeliness

All samples met holding time criteria except the following:

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Sample Number	Sampling Date	Extraction Date	Analysis Date	Holding Time	QC Limit
97424918	10/15/97	1/15/98	1/25/98	92 days	14 days

Samples were stored at -18°C upon receipt by the laboratory and thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. Detection Limits—Acceptable

Laboratory reporting limits are equal to or less than project required quantitation limits.

3. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target compound list (TCL) analytes were reported in laboratory method blanks.

b. Field Blanks

No field blanks were associated with this SDG.

4. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples.

5. Laboratory Control Sample

All laboratory control sample percent recoveries met QC guidelines.

6. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

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7. GC/ECD Instrument Performance

a. Resolution Check Mixture

The resolution check mixture was analyzed at the proper frequency. Resolution (valley depth) between adjacent peaks was greater than 60 percent of the shorter peak.

b. Performance Evaluation Mixture

i. Frequency

Samples were analyzed at the proper frequency.

ii. Resolution

Resolution was greater than 90 percent for all adjacent peaks.

iii. Retention Time Windows

Retention times of all pesticides were within windows calculated from the initial calibration.

iv. Pesticide Recovery

Recovery for all single component pesticides and surrogate compounds were within QC limits of 75 to 125 percent for both GC columns.

v. DDT/Endrin Breakdown

Percent breakdown for 4,4'-DDT and/or Endrin exceeded QC criteria of 20 percent for each compound or 30 percent for combined breakdown in the samples listed:

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Date	Time	Column	Compound	Percent Breakdown	Associated Samples
1/20/98	14:38	DB-5	4,4'-DDT % Breakdown	23.1	None
			Combined % Breakdown	36.4	
1/20/98	14:38	DB-608	4,4'-DDT % Breakdown	23.2	None
			Combined % Breakdown	33.4	

No qualifiers were necessary.

8. Pesticide Initial Calibration

a. Individual Standard Mixtures

Resolution between adjacent peaks for the initial calibration, mid level concentration was greater than 90 percent.

Retention time windows were calculated correctly.

Appropriate standards concentrations were used and peak heights of 50 to 100 percent of full scale were obtained.

The percent relative standard deviation (% RSD) of calibration response factors was less than 20 percent for pesticides and less than 30 percent for surrogates on both GL columns.

9. Pesticide Calibration Verification

Instrument blanks and PEM samples were analyzed at the proper frequency.

Resolution between adjacent peaks in individual pesticide mixtures exceeded 90 percent.

The difference between actual and calculated concentrations of individual pesticides exceeded QC criteria of ±25 percent for the following pesticides:

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Date	Time	GC Column	Compound	% Diff	Associated Samples
1/20/98	14:38	DB-5	4,4'-DDT	-48	None
			Methoxychlor	-34	
1/20/98	14:38	DB-608	4,4'-DDT	-44	None
			Methoxychlor	-30	
1/20/98	6:27	DB-5	4,4'-DDT	-28	None
			delta-BHC	45	
			Endosulfan sulfate	48	
			Endrin ketone	40	
1/20/98	6:27	DB-608	4,4'-DDT	-28	None
			delta-BHC	50	
			Endosulfan sulfate	55	
			Endrin ketone	43	

No qualifiers were assigned.

10. Pesticide Cleanup Checks

a. Florisil Cartridge Cleanup

Recovery for mixture A pesticides and surrogates were within QC limits of 80 to 120 percent. Recovery of 2,4,5-trichlorophenol was less than 5 percent as required.

b. Gel Permeation Cleanup (GPC)

All pesticides in the matrix spiking solution met recovery limits of 80 to 110 percent. Aroclor-1016 and 1260 patterns matched those of standards.

GPC blank concentrations did not exceed one-half the quantitation limit for any target analytes.

11. Sample Analysis

No unusual problems were noted.

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12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ORGANICS ANALYSIS DATA SHEET **Sample No: 97424918**
Pesticides/PCB by GC/ECD

Lab Sample ID: V044A
LIMS ID: 98-481
Matrix: Sediment
Data Release Authorized:
Reported: 01/28/98

QC Report No: V044-REGL, LLC
Project: 4000-027-001-2019-36
Date Sampled: 10/15/97
Date Received: 01/13/98

Date extracted: 01/15/98
Date analyzed: 01/25/98
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 28.6 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:10
Percent Moisture: 39.3%
pH: 6.4

CAS Number	Analyte	ug/kg
319-84-6	alpha-BHC	8.7 U
319-85-7	beta-BHC	8.7 U
319-86-8	delta-BHC	8.7 U
58-89-9	gamma-BHC (Lindane)	8.7 U
76-44-8	Heptachlor	8.7 U
309-00-2	Aldrin	8.7 U
1024-57-3	Heptachlor Epoxide	8.7 U
959-98-8	Endosulfan I	8.7 U
60-57-1	Dieldrin	17 U
72-55-9	4,4'-DDE	17 U
72-20-8	Endrin	17 U
33213-65-9	Endosulfan II	17 U
72-54-8	**4,4'-DDD**	**61**
1031-07-8	Endosulfan Sulfate	17 U
50-29-3	**4,4'-DDT**	**33**
72-43-5	Methoxychlor	87 U
53494-70-5	Endrin Ketone	17 U
7421-93-4	Endrin Aldehyde	17 U
57-74-9	gamma Chlordane	8.7 U
5103-71-9	alpha Chlordane	8.7 U
8001-35-2	Toxaphene	870 U
12674-11-2	Aroclor 1016	170 U
53469-21-9	Aroclor 1242	170 U
12672-29-6	Aroclor 1248	170 U
11097-69-1	Aroclor 1254	170 U
11096-82-5	Aroclor 1260	170 U
11104-28-2	Aroclor 1221	350 U
11141-16-5	Aroclor 1232	170 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	115%
Tetrachlorometaxylene	38.8%

FORM-1

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JMB
2/9/98

Inorganics

1.8

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 19 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: T873
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAV

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 10 samples, SDG T873, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97384060	97384062	97384063	97384064	97384066
97384067	97384068	97384069	97384070	97384071

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

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1. Holding Times

All samples met holding time criteria.

2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration, with the exception of:

CCV	Analyte	%R	Associated Samples
CCV8	Aluminum	113.5	None
	Iron	114.8	

No data qualification was required.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP, GFAA, and mercury analyses are equal to or less than the project-required detection limits.

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4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

Blank ID	Analyte	Concentration (mg/kg)	Associated Samples
MB 10/6/97	Aluminum	2	97384062, 97384063, 97384064, 97384066, 97384067, 97384068, 97384069, 97384070, 97384071
	Calcium	1	
	Potassium	30	
	Sodium	5	
MB 10/9/97	Aluminum	2	97384060
	Calcium	2	
	Sodium	6	
	Zinc	0.2	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB2	Potassium	511	97384062, 97384063, 97384060
CCB5	Potassium	687.2	97384064, 97384066, 97384067, 97384068, 97384069, 97384070, 97384071
CCB6	Potassium	669.6	None
CCB7	Potassium	561.7	None

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Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB8	Aluminum	25.2	None
	Manganese	1.2	
	Potassium	632.2	
CCB9	Barium	1.2	None
	Manganese	1.5	
	Potassium	594.7	
CCB10	Aluminum	20.7	None
CCB11	Aluminum	27.1	None
	Calcium	21	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Duplicate Sample Analysis

Relative percent difference between laboratory duplicate results exceeded QC limits of 35 percent (or ± 2 times the detection limit for concentrations < 5 times the detection limit) for soil for the following analytes:

Analyte	Original Concentration	Duplicate Concentration	QC Limit
Mercury	0.18	0.06	± 0.4

Results for the above analytes have been qualified as estimated (J).

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7. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97384060	Antimony	10.8
	Mercury	56.3

Positive results for the above analytes were qualified as estimated (J) and may exhibit a low bias. Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ).

8. ICP Serial Dilution

The ICP serial dilution percent difference was outside QC limits of 10 percent for the following analytes:

Analyte	Percent Difference
Cobalt	11

Positive results for the above analytes were qualified as estimated (J).

9. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

10. Laboratory Contact

The laboratory was contacted regarding sample 97384070, which should not have been analyzed. Since the associated porewater sample from the same location was received by the laboratory past holding time limits, the location was resampled for both sediment and porewater. The results from 97384070 will be disregarded.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

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Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4060
WR-SD-SD001-0000

Lab Sample ID: T873A
LIMS ID: 97-17222
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 59.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/30/97	7429-90-5	Aluminum	2	29,600
3050	10/09/97	6010	10/30/97	7440-36-0	Antimony	4	4 UJ
3050	10/09/97	6010	10/30/97	7440-38-2	Arsenic	4	5
3050	10/09/97	6010	10/30/97	7440-39-3	Barium	0.08	170
3050	10/09/97	6010	10/30/97	7440-41-7	Beryllium	0.08	0.51
3050	10/09/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/30/97	7440-70-2	Calcium	2	7,720
3050	10/09/97	6010	10/30/97	7440-47-3	Chromium	0.4	29.9
3050	10/09/97	6010	10/30/97	7440-48-4	Cobalt	0.2	16.4 J
3050	10/09/97	6010	10/30/97	7440-50-8	Copper	0.2	25.5
3050	10/09/97	6010	10/30/97	7439-89-6	Iron	2	35,400
3050	10/09/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/09/97	6010	10/30/97	7439-95-4	Magnesium	2	5,590
3050	10/09/97	6010	10/30/97	7439-96-5	Manganese	0.08	460
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.18 J
3050	10/09/97	6010	10/30/97	7440-02-0	Nickel	0.8	26.3
3050	10/09/97	6010	10/30/97	7440-09-7	Potassium	40	980
3050	10/09/97	6010	10/30/97	7782-49-2	Selenium	4	12
3050	10/09/97	6010	10/30/97	7440-22-4	Silver	0.2	0.5
3050	10/09/97	6010	10/30/97	7440-23-5	Sodium	4	1,190
3050	10/09/97	6010	10/30/97	7440-28-0	Thallium	4	19
3050	10/09/97	6010	10/30/97	7440-32-6	Titanium	0.4	1,650
3050	10/09/97	6010	10/30/97	7440-62-2	Vanadium	0.2	82.0
3050	10/09/97	6010	10/30/97	7440-66-6	Zinc	0.3	106

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

00910

OC1C65 JMB
~~J64~~
11/25/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4062

WR-SD-SD003-0000

Lab Sample ID: T873B
LIMS ID: 97-17223
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 57.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	28,000
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	4	4 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	4	4
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.08	155
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.08	0.48
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	7,090
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.4	27.3
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	16.4 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	28.6
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	35,600
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	12
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	5,290
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.08	515
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.12 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	0.8	24.1
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	40	1,040
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	4	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.6
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	4	1,050
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	4	19
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	83.6
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.3	100

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

091065B
JMB
11/25/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4063
WR-SD- SD005-0000

Lab Sample ID: T873C
LIMS ID: 97-17224
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized
Reported: 11/10/97

Percent Total Solids: 51.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	32,100
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	6
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.10	167
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.54
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	7,600
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	32.7
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.7 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	37.1
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	47,600
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	16
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	5,870
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.10	725
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.07 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1.0	27.3
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,140
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,040
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	23
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	93.0
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	114

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4064

WR-SD-SD011-0000

Lab Sample ID: T873D
LIMS ID: 97-17225
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 47.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	36,900
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	176
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	9,850
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	35.5
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.0 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	40.0
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	40,900
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	6,450
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	679
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.06 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	27
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,280
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,140
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	23
3050	10/06/97	6010	10/30/97	7440-32-6	Titanium	0.5	1,960
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	99.5
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	105

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001067 JMB 11/25/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4066

WR-SD-SD015-0000

Lab Sample ID: T873E
LIMS ID: 97-17226
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized
Reported: 11/10/97

Percent Total Solids: 50.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	36,500
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.10	175
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.60
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,150
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	34.7
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.9 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	39.0
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	40,400
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	6,510
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.10	583
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1.0	27.8
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,330
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,200
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	22
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	97.6
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	96.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001063

00911

11/25/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4067

WR-SD- SD017- 0000

Lab Sample ID: T873F
LIMS ID: 97-17227
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 47.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	36,800
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	170
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.2
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,020
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	34.7
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.5 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	37.5
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	39,600
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	6,560
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	571
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	27
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,340
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	7
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,150
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	17
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	97.5
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	93.1

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

00109 11/25

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4068

WR-SD-SD018-0000

Lab Sample ID: T873G
LIMS ID: 97-17228
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 42.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	41,100
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	6	6 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	6	6 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	201
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,460
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.6	38.7
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.2 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	44.5
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	44,100
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	17
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	7,120
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	773
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.06 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	29
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	60	1,580
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	6	12
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	6	1,140
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	6	24
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	108
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.5	114

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001070 JMB 11/25/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4069

WR-SD-SD019-0000

Lab Sample ID: T873H
LIMS ID: 97-17229
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized
Reported: 11/10/97

Percent Total Solids: 45.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	40,700
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	192
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,540
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	39.3
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.0 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	41.9
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	43,400
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	7,090
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	753
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	31
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,480
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,220
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	25
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	109
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001071

JMB 11/25/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4070

WR-SD-SD020-0000

Lab Sample ID: T873I
LIMS ID: 97-17230
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 44.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	40,900
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	189
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,330
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	38.5
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.5 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	43.7
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	43,700
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	7,050
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	754
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.07 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	30
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,460
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,150
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	22
3050	10/06/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,040
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	107
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	110

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001072 JMB 11/25

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4071

WR-SD-SD024-0000

Lab Sample ID: T873J
LIMS ID: 97-17231
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 11/10/97

Percent Total Solids: 47.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/06/97	6010	10/30/97	7429-90-5	Aluminum	2	39,400
3050	10/06/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/06/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/06/97	6010	10/30/97	7440-39-3	Barium	0.1	179
3050	10/06/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/06/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/06/97	6010	10/30/97	7440-70-2	Calcium	2	8,280
3050	10/06/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.1
3050	10/06/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.3 J
3050	10/06/97	6010	10/30/97	7440-50-8	Copper	0.2	40.9
3050	10/06/97	6010	10/30/97	7439-89-6	Iron	2	41,400
3050	10/06/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/06/97	6010	10/30/97	7439-95-4	Magnesium	2	6,790
3050	10/06/97	6010	10/30/97	7439-96-5	Manganese	0.1	667
CLP	10/06/97	7471	10/13/97	7439-97-6	Mercury	0.02	0.06 J
3050	10/06/97	6010	10/30/97	7440-02-0	Nickel	1	29
3050	10/06/97	6010	10/30/97	7440-09-7	Potassium	50	1,380
3050	10/06/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/06/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/06/97	6010	10/30/97	7440-23-5	Sodium	5	1,200
3050	10/06/97	6010	10/30/97	7440-28-0	Thallium	5	24
3050	10/06/97	6010	10/30/97	7440-62-2	Vanadium	0.3	103
3050	10/06/97	6010	10/30/97	7440-66-6	Zinc	0.4	98.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001073

00919

JMB 11/25/97

1.8

Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MANAGERS DESIGNERS/CONSULTANTS

RECEIVED
JAN 29 1998
Environmental Cleanup Office

MEMORANDUM

DATE: 19 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: T870
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAO

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 26 samples, SDG T870, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97384072	97384079	97384084	97384090	97384096
97384073	97384080	97384085	97384091	97384097
97384074	97384081	97384086	97384093	97384098
97384076	97384082	97384088	97384094	97384099
97384078	97384083	97384089	97384095	97384100
				97384101

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

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1. Holding Times

All samples met holding time criteria.

2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP, GFAA, and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

Blank ID	Analyte	Concentration (mg/kg)	Affected Samples
Method Blank 1	Aluminum	1	None
	Sodium	5	

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Blank ID	Analyte	Concentration (mg/kg)	Affected Samples
Method Blank 2	Aluminum	1	None
	Sodium	3	
Method Blank 3	Aluminum	2	None
	Sodium	5	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB6	Copper	2.1	None

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the established control limits for sediment.

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7. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results were within the QC limit of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment.

8. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97384076	Antimony	15.4
97384091	Antimony	24.3

Positive results for the above analytes were qualified as estimated (J) and may exhibit a low bias. Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ).

9. Post Digestion Spike Recovery

The following samples had post digestion spike recoveries outside of the QC limit of 85 to 115 percent:

Sample	Element	Percent Recovery
97384076	Antimony	171.8
97384091	Antimony	123.8

Post digestion spike results suggest that antimony was lost during sample digestion for the samples listed above.

10. ICP Serial Dilution

The percent differences (percent D) for ICP serial dilution analysis were within the QC limits of 10 percent for all parameters.

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11. Field Duplicate Analysis

Samples 97384086 and 97384088 were field duplicates. Results exhibited reasonable agreement.

12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
RESOURCES
INCORPORATED

WR-SD-SD026-0000

INORGANICS ANALYSIS DATA SHEET **Sample No: 9738 4072**
TOTAL METALS

Lab Sample ID: T870A
LIMS ID: 97-17196
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 44.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	38,300
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	5 UJ
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	177
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.2
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,180
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.2
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.5
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	41.7
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	40,200
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,910
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	715
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	28
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,240
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,040
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	11
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	100
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	92.5

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

001389

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4073

WR-SD-SD028-0000

Lab Sample ID: T870B
LIMS ID: 97-17197
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 48.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,400
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	6 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.10	183
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.10	0.68
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,370
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.0
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	17.9
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	40.9
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	39,900
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,960
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.10	723
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1.0	27.9
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,290
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,130
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	9
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	101
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	88.2

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001930 JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4074

WR-SD-SD030-0000

Lab Sample ID: T870C
LIMS ID: 97-17198
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 48.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	36,900
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	5 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.10	174
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.10	0.62
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,210
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	35.9
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	17.4
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	41.0
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	38,900
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,700
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.10	662
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1.0	26.9
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,230
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	1.0
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,070
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	10
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	99.1
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	90.9

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001391

00927

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4076

WR-SD-SD035-0000

Lab Sample ID: T870D
LIMS ID: 97-17199
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 47.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	41,000
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	5 U J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	182
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,590
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.0
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.7
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	43.8
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,100
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,220
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	763
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,320
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,150
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	11
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.5	2,040
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	110
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	91.0

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001392

00928

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4078

WR-SD-SD023-0000

Lab Sample ID: T870E
LIMS ID: 97-17200
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 39.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	3	44,000
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	6	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	6	7
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	194
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.3	2.2
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	3	8,220
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.6	46.3
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.4	19.0
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.3	62.4
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	3	47,200
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	3	94
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	3	7,280
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	749
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.11
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	30
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	60	1,500
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	6	6 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.4	0.8
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	6	1,130
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	6	9
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.4	114
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.5	349

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4079

WR-SD-SD022-0000

Lab Sample ID: T870F
LIMS ID: 97-17201
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 44.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	40,800
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	184
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.6
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,030
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.4
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.9
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	49.7
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	44,000
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	34
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,040
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	696
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.08
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,400
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,120
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	7
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	107
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	166

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4080

WR-SD-SD033-0000

Lab Sample ID: T870G
LIMS ID: 97-17202
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 43.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	6	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	6	7
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	171
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	1.6
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,030
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.6	39.7
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.0
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	60.1
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,300
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	142
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,120
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	642
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.10
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	30
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	60	1,300
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	6	6 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.8
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	6	1,100
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	6	6 U
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	105
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.5	310

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4081

WR-SD-SD032-0000

Lab Sample ID: T870H
LIMS ID: 97-17203
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 37.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	3	42,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	7	8 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	7	7
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	167
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.3	1.7
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	3	7,620
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.7	41.7
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.4	18.7
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.3	77.0
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	3	45,400
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	3	262
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	3	7,810
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	751
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.03	0.10
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	32
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	70	1,570
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	7	7 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.4	1.2
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	7	1,380
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	7	7 U
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.4	111
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.5	373

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4082

WR-SD-SD031-0000

Lab Sample ID: T870I
LIMS ID: 97-17204
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 43.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	43,400
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	6	13 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	6	6 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	170
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	1.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,080
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.6	42.8
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.7
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	63.4
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	43,700
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	85
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,780
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	644
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.07
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	34
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	60	1,530
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	6	6 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.8
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	6	1,490
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	6	12
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	111
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	250

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001397

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4083

WR-SD-SD016-0000

Lab Sample ID: T870J
LIMS ID: 97-17205
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 47.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	41,700
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	11 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	7
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	198
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	9,190
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	50.7
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.8
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	55.6
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	48,000
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	16
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,250
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	653
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	34
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,490
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,370
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	8
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	102
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	132

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001398 JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4084

WR-SD-SD027-0000

Lab Sample ID: T870K
LIMS ID: 97-17206
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 47.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	41,300
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	188
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,460
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.3
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.8
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	44.1
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,300
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	13
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,270
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	740
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,350
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,170
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	9
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	108
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	95.9

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

001399

00935

JMB 12/10/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4085

WR-SD-SD025-0000

Lab Sample ID: T870L
LIMS ID: 97-17207
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 48.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	38,700
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	185
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,310
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.5
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.5
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	42.8
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	41,100
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	15
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,120
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	701
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,240
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,090
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	8
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	103
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	98.4

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

002000 JMB 12/16/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4086

WR-SD-SD021-0000

Lab Sample ID: T870M
LIMS ID: 97-17208
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 46.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,800
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	193
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,360
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.9
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	19.4
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	45.3
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,600
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	11
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,310
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	792
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,320
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,050
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	6
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.5	1,850
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	106
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	96.9

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002001

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4088

WR-SD-SD021-1000

Lab Sample ID: T870N
LIMS ID: 97-17209
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 46.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	43,300
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	194
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,760
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.9
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	19.4
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	45.2
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	43,900
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	12
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,440
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	790
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	30
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,450
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,230
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	10
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.5	2,030
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	112
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	97.7

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

002002 JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4089

WR-SD- SD029-0000

Lab Sample ID: T870O
LIMS ID: 97-17210
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 47.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	184
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.6
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	1.1
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	7,700
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	42.1
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	19.6
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	55.6
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,000
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	77
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,910
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	731
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.10
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	32
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,330
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.7
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,240
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	5 U
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	106
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	231

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

002003

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4090

WR-SD- SD002-0000

Lab Sample ID: T870P
LIMS ID: 97-17211
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 78.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	1	16,600
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	3	6 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	3	6
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.06	115
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.06	0.37
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.1	0.2
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	1	5,960
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.3	17.6
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.2	13.1
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.1	15.3
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	1	29,900
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	1	5
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	1	3,830
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.06	385
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.01	0.01 U
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	0.6	18.4
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	30	790
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	3	3 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.2	0.2 U
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	3	893
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	3	5
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.2	69.6
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.2	66.0

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4091

WR-SD-SD004-0000

Lab Sample ID: T870Q
LIMS ID: 97-17212
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 69.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	1	20,500
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	4	4 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	4	5
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.07	125
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.07	0.40
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.1	0.2
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	1	5,770
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.4	20.0
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.2	12.7
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.1	21.5
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	1	31,300
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	1	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	1	4,200
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.07	389
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.01	0.02
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	0.7	18.7
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	40	840
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	4	4 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	4	870
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	4	5
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.4	1,410
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.2	70.0
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.3	70.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002005

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4093

WR-SD-SD006-0000

Lab Sample ID: T870R
LIMS ID: 97-17213
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 44.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	42,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	200
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,870
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	39.1
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.9
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	45.7
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	43,500
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	12
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,310
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	764
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.08
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	30
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,520
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,230
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	6
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	107
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	107

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002006

00942

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4094

WR-SD-SD007-0000

Lab Sample ID: T870S
LIMS ID: 97-17214
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 48.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	42,700
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	190
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.7
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,850
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.9
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.8
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	43.0
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	42,300
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,240
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	725
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,470
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,330
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	6
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	107
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	93.2

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

00207

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4095

WR-SD- SD008-0000

Lab Sample ID: T870T
LIMS ID: 97-17215
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 49.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,200
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	10 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	322
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.6
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.6
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	9,820
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.4
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.1
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	64.8
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	41,500
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	20
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,610
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	479
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.08
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	29
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,670
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,290
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	9
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	101
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	226

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

002008 JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4096

WR-SD-SD009-0000

Lab Sample ID: T870U
LIMS ID: 97-17216
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized
Reported: 11/06/97

Percent Total Solids: 48.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	39,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.1	178
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.1	0.6
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,170
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.1
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.6
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	40.5
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	41,100
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,850
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.1	682
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1	28
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,280
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,140
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	7
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	102
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	90.9

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002009

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4097

WR-SD-SD010-0006

Lab Sample ID: T870V
LIMS ID: 97-17217
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 51.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	42,100
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	11 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.09	193
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.09	0.69
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,960
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	38.3
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	20.4
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	44.8
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	44,600
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,480
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.09	815
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.05
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	0.9	30.4
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,440
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,260
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	10
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	112
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	96.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4098

WR-SD-SD012-0000

Lab Sample ID: T870W
LIMS ID: 97-17218
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 66.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	1	24,600
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	4	8 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	4	4 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.07	124
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.07	0.40
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.1	0.2
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	1	6,590
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.4	22.2
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.2	14.0
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.1	61.5
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	1	30,700
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	1	6
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	1	4,600
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.07	440
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.01	0.03
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	0.7	19.5
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	40	990
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	4	4 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.2	0.3
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	4	1,070
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	4	6
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.4	1,500
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.2	76.6
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.3	180

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002011

00947

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4099

WR-SD-SD013-0000

Lab Sample ID: T870X
LIMS ID: 97-17219
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 50.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	40,000
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.10	186
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.10	0.66
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,420
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	37.0
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.0
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	45.9
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	40,800
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	9
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,000
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.10	671
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1.0	28.4
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,350
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,240
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	9
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	103
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	94.7

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002012

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4100

WR-SD- SD014-0000

Lab Sample ID: T870Y
LIMS ID: 97-17220
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 49.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	37,800
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	11 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.10	183
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.10	0.65
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,060
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	36.4
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	17.9
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	43.4
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	40,200
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	10
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	6,890
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.10	663
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.06
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	1.0	27.9
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,270
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.5
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,100
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	11
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	98.5
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	97.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4101

WR-SD-SD034-0000

Lab Sample ID: T870Z
LIMS ID: 97-17221
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized:
Reported: 11/06/97

Percent Total Solids: 50.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/09/97	6010	10/21/97	7429-90-5	Aluminum	2	40,600
3050	10/09/97	6010	10/21/97	7440-36-0	Antimony	5	9 J
3050	10/09/97	6010	10/21/97	7440-38-2	Arsenic	5	5 U
3050	10/09/97	6010	10/21/97	7440-39-3	Barium	0.09	188
3050	10/09/97	6010	10/21/97	7440-41-7	Beryllium	0.09	0.66
3050	10/09/97	6010	10/21/97	7440-43-9	Cadmium	0.2	0.4
3050	10/09/97	6010	10/21/97	7440-70-2	Calcium	2	8,530
3050	10/09/97	6010	10/21/97	7440-47-3	Chromium	0.5	37.7
3050	10/09/97	6010	10/21/97	7440-48-4	Cobalt	0.3	18.4
3050	10/09/97	6010	10/21/97	7440-50-8	Copper	0.2	42.1
3050	10/09/97	6010	10/21/97	7439-89-6	Iron	2	41,100
3050	10/09/97	6010	10/21/97	7439-92-1	Lead	2	14
3050	10/09/97	6010	10/21/97	7439-95-4	Magnesium	2	7,140
3050	10/09/97	6010	10/21/97	7439-96-5	Manganese	0.09	740
CLP	10/06/97	7471	10/15/97	7439-97-6	Mercury	0.02	0.07
3050	10/09/97	6010	10/21/97	7440-02-0	Nickel	0.9	29.3
3050	10/09/97	6010	10/21/97	7440-09-7	Potassium	50	1,380
3050	10/09/97	6010	10/21/97	7782-49-2	Selenium	5	5 U
3050	10/09/97	6010	10/21/97	7440-22-4	Silver	0.3	0.4
3050	10/09/97	6010	10/21/97	7440-23-5	Sodium	5	1,220
3050	10/09/97	6010	10/21/97	7440-28-0	Thallium	5	8
3050	10/09/97	6010	10/21/97	7440-32-6	Titanium	0.5	1,870
3050	10/09/97	6010	10/21/97	7440-62-2	Vanadium	0.3	105
3050	10/09/97	6010	10/21/97	7440-66-6	Zinc	0.4	94.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/16/97

002014

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MANAGERS DESIGNERS/CONSULTANTS

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Environmental Cleanup Office

MEMORANDUM

DATE: 19 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RHM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: T914
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAW

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 55 samples, SDG T914, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97384103	97384104	97384105	97384106	97384108
97384109	97384901	97384903	97384904	97384905
97384906	97384907	97384908	97384909	97384910
97384911	97384912	97384913	97384915	97384916
97384917	97384919	97384921	97384922	97384924
97384925	97384926	97384927	97384928	97384929
97384930	97384933	97384934	97384935	97384937
97384938	97384939	97384940	97384941	97384943
97384944	97384945	97384947	97384950	97384952
97384954	97384956	97384958	97384960	97384961
97384963	97384964	97384965	97384966	97384967

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Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

1. Holding Times

All samples met holding time criteria, with the exception of the following for mercury:

Sample ID	Date Collected	Date Analyzed	No. of Days	Holding Time Limit
97384103	9/19/97	10/18/97	29	28 days
97384104	9/19/97	10/18/97	29	28 days
97384105	9/19/97	10/18/97	29	28 days
97384106	9/19/97	10/18/97	29	28 days
97384108	9/19/97	10/18/97	29	28 days
97384109	9/19/97	10/18/97	29	28 days
97384901	9/19/97	10/18/97	29	28 days
97384903	9/19/97	10/18/97	29	28 days
97384904	9/19/97	10/18/97	29	28 days
97384905	9/19/97	10/18/97	29	28 days
97384906	9/19/97	10/18/97	29	28 days
97384907	9/19/97	10/18/97	29	28 days
97384908	9/19/97	10/18/97	29	28 days
97384909	9/19/97	10/18/97	29	28 days
97384910	9/19/97	10/18/97	29	28 days
97384911	9/19/97	10/18/97	29	28 days
97384912	9/19/97	10/18/97	29	28 days
97384913	9/19/97	10/18/97	29	28 days
97384915	9/19/97	10/18/97	29	28 days

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Sample ID	Date Collected	Date Analyzed	No. of Days	Holding Time Limit
97384916	9/19/97	10/18/97	29	28 days
97384917	9/19/97	10/18/97	29	28 days

Samples were stored at -18°C upon receipt by the laboratory and, thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration with the exception of:

Calibration	Compound	%R	Associated Samples
CCV8	Aluminum	113.5	None
	Iron	114.8	

No data qualification was required.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

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3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP, GFAA, and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

Blank ID	Analyte	Concentration (mg/kg)	Affected Samples
Method Blank #1	Aluminum	2	None
	Sodium	8	
Method Blank #2	Aluminum	3	None
	Calcium	2	
	Sodium	4	
	Zinc	2.6	
Method Blank #3	Aluminum	3	None
	Calcium	1	
	Potassium	30	
	Sodium	11	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the five times blank criterion.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB2	Potassium	511	None

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Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB5	Potassium	687.2	97384108, 97384109, 97384901, 97384903, 97384904, 97384905, 97384906, 97384907, 97384908
CCB6	Potassium	669.6	None
CCB7	Potassium	561.7	97384913, 97384915, 97384916, 97384917, 97384919, 97384921, 97384922, 97384952, 97384954, 97384956
CCB8	Aluminum Manganese Potassium	25.2 1.2 632.2	None
CCB9	Barium Manganese Potassium	1.2 1.5 594.7	97384958, 97384960, 97384961, 97384963, 97384964, 97384965, 97384966
CCB10	Aluminum	20.7	None
CCB11	Aluminum Calcium	27.1 21	None

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

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5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the established control limits for sediment.

7. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results were within the QC limit of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment.

8. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97384106	Antimony	12.7
	Calcium	136
97384924	Antimony	8 8
	Calcium	127
97384958	Antimony	13.1

Positive results for the above analytes were qualified as estimated (J) and may exhibit a low bias for antimony and high bias for calcium. Detection limits for antimony were qualified as estimated (UJ) and rejected (R) for spike recoveries less than 10 percent.

9. ICP Serial Dilution

The ICP serial dilution percent difference was outside QC limits of 10 percent for the following analytes:

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Serial Dilution ID	Analyte	Percent Difference	Associated Samples
Serial Dilution #3	Cobalt Zinc	10.3 11.1	97384952, 97384954, 97384956, 97384958, 97384960, 97384961, 97384963, 97384964, 97384965, 97384966, 9734967, 97384909, 97384910, 97384911, 97384912

Positive results for the above analytes were qualified as estimated (J).

10. Post Digest Spike Recovery

The following samples had post digestion spike recoveries outside of the QC limit of 85 to 115 percent:

Sample	Element	Percent Recovery
97384106	Antimony	81.1
97384958	Antimony	27.9

Sample results with spike recoveries outside limits have been flagged estimated (J). Detection limits have been flagged J for samples with spike recoveries less than 85 percent.

11. Field Duplicate Analysis

Samples 97384913/97384915 and 97384941/97384943 were field duplicates. Results exhibited reasonable agreement.

12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

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Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4103

WR-SD- SD036-0000

Lab Sample ID: T914A
LIMS ID: 97-17585
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/11/97

Percent Total Solids: 46.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	36,600
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	182
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.2
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,890 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	35.6
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.5
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	41.5
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	41,200
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,790
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	770
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	29
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,240
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	984
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	101
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	96.7

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4104

WR-SD-SD040-0000

Lab Sample ID: T914B
LIMS ID: 97-17586
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 48.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	36,300
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 UJ
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	182
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.61
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.2
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,960 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	35.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.0
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	42.0
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	40,900
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,640
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	714
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.10 ~~J~~ gmB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	28.7
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,250
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,060
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	23
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	99.5
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	98.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4105

WR-SD-SD042-0000

Lab Sample ID: T914C
LIMS ID: 97-17587
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 45.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	40,900
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	186
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,540 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.9
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.5
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	44.5
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	7,160
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	831
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 * JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,380
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,110
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	22
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	108
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	99.4

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4106

WR-SD-SD049-0000

Lab Sample ID: T914D
LIMS ID: 97-17588
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 48.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	36,300
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	178
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,930 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	35.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.3
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	42.7
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	40,600
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,690
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	721
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06 J JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	29
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,230
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,020
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	1,870
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	100
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	95.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4108

WR-SD-SD051-0000

Lab Sample ID: T914E
LIMS ID: 97-17589
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 46.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	34,300
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	6
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	176
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,800 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	36.9
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.8
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	58.0
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	41,100
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	26
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,090
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	645
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.09 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	28
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,270
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,030
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	1,970
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	101
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	142

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4109

WR-SD-SD053-0000

Lab Sample ID: T914F
LIMS ID: 97-17590
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 54.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	32,100
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 UJ
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	167
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.54
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4 ~~J~~ JMB
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,230 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	34.0
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	16.9
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	70.2
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	37,900
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	122
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,120
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	603
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.09 ~~J~~ JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	28.1
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,140
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,060
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	1,760
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	91.0
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	119

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4901

WR-SD-SD056-0000

Lab Sample ID: T914G
LIMS ID: 97-17591
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 56.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	26,600
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	4	4 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	4	4 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	149
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.46
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,670 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.4	42.5
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	15.6
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	71.1
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	35,500
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	89
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	5,490
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	528
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.12 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	25.6
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	40	1,060
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	4	10
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.6
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	4	1,010
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	4	20
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.4	1,730
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	84.1
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	148

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4903

WR-SD-SD037-0000

Lab Sample ID: T914H
LIMS ID: 97-17592
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 46.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	40,400
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	186
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,470 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	38.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.5
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	41.1
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	7,040
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	773
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,420
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,170
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	22
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	110
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	95.8

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 2/18/

004398

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4904

WR-SD-SD038-0000

Lab Sample ID: T914I
LIMS ID: 97-17593
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 44.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	39,700
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	7
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	184
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,930 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	38.2
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.9
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	48.1
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	44,200
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	17
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,740
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	854
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07 J JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,440
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,030
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	108
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4905

WR-SD-SD039-0000

Lab Sample ID: T914J
LIMS ID: 97-17594
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 45.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	40,200
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	192
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,160 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.3
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.3
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	43.0
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,100
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	20
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,920
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	804
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06 J gmB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,360
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,070
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	21
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	106
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	99.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4906

WR-SD-SD041-0000

Lab Sample ID: T914K
LIMS ID: 97-17595
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 49.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	38,000
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	186
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.66
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,740 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	36.9
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.7
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	42.5
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	42,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	18
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,670
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	677
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	30.5
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,280
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	10
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	978
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	23
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	104
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	105

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4907

WR-SD-SD043-0000

Lab Sample ID: T914L
LIMS ID: 97-17596
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	38,800
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	187
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,470 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.4
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.5
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	41.6
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,100
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	7,030
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	780
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 J JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,360
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	15
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,110
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	27
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	108
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	95.5

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4908

WR-SD-SD044-0000

Lab Sample ID: T914M
LIMS ID: 97-17597
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 49.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	38,900
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	183
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.63
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,700 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.6
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.6
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	39.9
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	42,500
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,860
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	611
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	29.5
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,370
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	14
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,220
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	25
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	104
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	101

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4913

WR-SD-SD048-0000

Lab Sample ID: T914N
LIMS ID: 97-17598
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 56.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	32,300
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 U J
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	5
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.08	154
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.08	0.56
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	7,620 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	31.2
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	17.0
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	32.9
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	37,800
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	10
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	5,930
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.08	594
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04 ≠ JMB
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.8	25.9
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	1,100
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	1,070
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	4
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.4	1,870
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	94.6
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	87.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4915

WR-SD-SD048-0000

Lab Sample ID: T914O
LIMS ID: 97-17599
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/11/97

Percent Total Solids: 57.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	32,700
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 U J
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	5
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.08	152
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.08	0.57
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	7,640 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	31.1
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	17.1
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	33.3
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	38,300
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	10
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	5,930
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.08	592
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.8	26.0
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	1,100
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	10
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	1,070
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	4 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.4	1,870
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	96.3
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	89.9

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4916

WR-SD-SD052-0000

Lab Sample ID: T914P
LIMS ID: 97-17600
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 50.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	37,600
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.10	179
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.10	0.66
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,340 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	36.1
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.3
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	37.9
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	41,500
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,460
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.10	716
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1.0	27.6
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,270
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	10
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,120
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	101
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	98.6

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004406

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4917

WR-SD-SD055-0000

Lab Sample ID: T914Q
LIMS ID: 97-17601
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 69.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	1	16,600
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 ~~R~~ JU
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	4 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.07	111
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.07	0.39
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.1	0.2
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	1	5,360 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	18.6
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.2	12.9
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.1	18.8
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	1	29,800
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	1	9
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	1	3,710
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.07	356
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.01	0.02 ~~J~~
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.7	17.3
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	760
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	9
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.2	0.7
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	753
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	4 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.4	1,520
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.2	71.9
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	67.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4919

WR-SD-SD057-0000

Lab Sample ID: T914R
LIMS ID: 97-17602
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 50.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	37,500
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~ RUJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.10	171
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.10	0.63
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,210 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	35.2
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	17.7
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	37.8
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	39,900
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	9
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,700
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.10	619
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1.0	28.0
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,190
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	14
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,100
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.5	1,910
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	100
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	89.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4921

WR-SD-SD059-0000

Lab Sample ID: T914S
LIMS ID: 97-17603
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	40,900
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~R~~UJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	177
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,670 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	37.8
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.6
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	40.4
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	41,700
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	11
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,000
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	668
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	29
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,360
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,220
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.5	1,980
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	105
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	94.0

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004409

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4922

WR-SD-SD058-0000

Lab Sample ID: T914T
LIMS ID: 97-17604
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 66.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	22,800
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 ~~UR~~ UJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	4 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.08	126
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.08	0.39
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	7,190 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	24.5
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.2	15.6
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	30.0
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	31,700
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	13
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	5,080
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.08	322
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.01	0.10
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.8	23.8
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	940
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	11
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.2	0.7
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	967
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	5
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.4	1,650
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.2	79.7
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	87.2

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004410

00978

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4924

WR-SD-SD061-0000

Lab Sample ID: T914U
LIMS ID: 97-17605
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 43.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	41,500
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	6	6 ~~R~~ UJ R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	6	6 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	174
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,610 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.6	39.2
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.4
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	45.3
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,200
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	17
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,980
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	588
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	60	1,350
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	6	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	6	1,190
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	6	6
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.6	2,110
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	110
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.5	107

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004411

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4925

WR-SD-SD060-0000

Lab Sample ID: T914V
LIMS ID: 97-17606
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 59.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	24,700
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 ~~J~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	5
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.08	152
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.08	0.49
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	6,590 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	27.7
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.2	11.3
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	49.6
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	32,700
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	36
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	5,650
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.08	397
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.14
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.8	21.3
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	1,340
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	12
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.2	0.8
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	816
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	4 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.2	84.9
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	112

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

00441

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4926

WR-SD-SD066-0000

Lab Sample ID: T914W
LIMS ID: 97-17607
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 57.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	33,200
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	4	4 ~~J~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	4	5
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.08	163
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.08	0.55
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	10,300 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.4	34.8
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	17.8
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	41.1
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	37,600
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	28
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,390
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.08	547
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.23
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.8	28.7
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	40	1,250
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	4	11
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	4	1,040
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	4	4 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.4	1,910
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	97.7
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	158

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004413

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4927

WR-SD-SD071-0000

Lab Sample ID: T914X
LIMS ID: 97-17608
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 50.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	35,200
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.09	175
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.09	0.60
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,120 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	34.2
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.1
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	42.5
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	38,800
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	24
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,630
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.09	653
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.15
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.9	28.2
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,100
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	0.9
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,070
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	8
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	95.9
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4928

WR-SD-SD073-0000

Lab Sample ID: T914Y
LIMS ID: 97-17609
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 43.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	42,500
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	6	6 ~~U~~ R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	6	6 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	178
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,440 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.6	37.8
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.9
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	46.3
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,600
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	15
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,410
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	748
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.09
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	29
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	60	1,350
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	6	14
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	6	1,120
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	6	6 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	107
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	99.9

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4929

WR-SD-SD076-0000

Lab Sample ID: T914Z
LIMS ID: 97-17610
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 44.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	42,600
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~J~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	182
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,780 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	39.0
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	19.2
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	46.0
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,600
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,310
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	708
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.08
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,410
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	10
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,250
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	6
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	110
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

00984

004416

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4930

WR-SD-SD074-0000

Lab Sample ID: T914AA
LIMS ID: 97-17611
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 42.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	43,300
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	6	6 ~~U~~ R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	6	6 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	229
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	9,970 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.6	40.2
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	20.0
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	59.1
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	45,800
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	28
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,590
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	857
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.09
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	32
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	60	1,500
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	6	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.1
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	6	1,200
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	6	6 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.6	2,080
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	112
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.5	132

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4933

WR-SD-SD062-0000

Lab Sample ID: T914AB
LIMS ID: 97-17612
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 45.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	42,600
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	208
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,390 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	41.7
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	20.1
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	51.1
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	44,500
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	27
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,190
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	636
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.20
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	37
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,360
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.2
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,100
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	122
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	161

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4934

WR-SD-SD063-0000

Lab Sample ID: T914AC
LIMS ID: 97-17613
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	41,300
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	222
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,500 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	40.8
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.2
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	48.4
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	44,400
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	29
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,100
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	750
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.18
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	34
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,310
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.3
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,100
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	115
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	185

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4935

WR-SD-SD064-0000

Lab Sample ID: T914AD
LIMS ID: 97-17614
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 42.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	37,200
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	6	6 ~~U~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	6	6 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	184
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	7,450 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.6	36.9
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.6
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	45.2
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,100
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	22
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,350
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	840
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	60	1,190
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	6	14
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.2
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	6	874
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	6	8
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	104
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.5	125

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4937

WR-SD-SD065-0000

Lab Sample ID: T914AE
LIMS ID: 97-17615
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	39,000
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	179
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,270 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	36.5
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	19.0
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	40.5
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,100
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,770
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	699
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,240
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,090
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	107
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	104

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4938

WR-SD-SD067-0000

Lab Sample ID: T914AF
LIMS ID: 97-17616
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 45.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	40,400
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 ~~U~~ R
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	190
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,050 J
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	38.9
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	17.8
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	48.7
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,800
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	27
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	6,840
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	624
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.24
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	32
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,250
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	17
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.2
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,000
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	113
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	150

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4939

WR-SD-SD068-0000

Lab Sample ID: T914AX
LIMS ID: 97-17617
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 46.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	2	37,500
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	5	5 ~~J~~R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.10	168
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.65
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	2	7,410 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.0
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.2
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.2	46.2
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	2	44,100
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	2	25
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	2	6,360
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.10	681
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.08
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	1.0	30.0
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	50	1,140
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	5	954
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	5	5
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.3	110
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.4	134

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

00442

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4940

WR-SD-SD069-0000

Lab Sample ID: T914AY
LIMS ID: 97-17618
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/11/97

Percent Total Solids: 52.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	4	38,300
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	9	9 UR
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	9	9 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	179
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.7
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.4	0.5
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	4	7,570 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.9	34.4
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	21.3
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.4	39.3
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	4	54,200
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	4	24
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	4	6,090
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	725
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	27
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	90	1,080
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	9	17
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.5
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	9	935
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	9	9 U
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	136
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.7	144

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4941

WR-SD-SD070-0000

Lab Sample ID: T914AG
LIMS ID: 97-17619
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 56.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	3	33,900
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	8	8 ~~U~~R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	8	8 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	165
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.7
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.3	0.4
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	3	7,310 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.8	28.8
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	19.9
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.3	32.6
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	3	51,700
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	3	19
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	3	5,650
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	625
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	25
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	80	940
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	8	17
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.4
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	8	928
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	8	8 U
3050	10/17/97	6010	11/04/97	7440-32-6	Titanium	0.8	2,820
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	131
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.7	116

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4943

WR-SD-SD070-1000

Lab Sample ID: T914AH
LIMS ID: 97-17620
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/11/97

Percent Total Solids: 56.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	3	35,000
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	8	8 BR
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	8	8 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	167
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.7
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.3	0.4
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	3	7,610 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.8	29.7
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	20.3
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.3	34.1
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	3	53,000
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	3	17
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	3	5,810
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	638
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	25
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	80	970
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	8	11
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.3
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	8	975
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	8	8 U
3050	10/17/97	6010	11/04/97	7440-32-6	Titanium	0.8	2,840
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	132
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.7	117

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4944

WR-SD-SD072-0000

Lab Sample ID: T914AI
LIMS ID: 97-17621
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 56.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	4	30,900
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	9	9 ~~J~~R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	9	9 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	150
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.6
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.4	0.4
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	4	7,320 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.9	27.4
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	18.4
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.4	31.7
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	4	51,900
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	4	17
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	4	5,500
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	591
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.01	0.05
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	22
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	90	840
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	9	16
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.3
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	9	826
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	9	9 U
3050	10/17/97	6010	11/04/97	7440-32-6	Titanium	0.9	2,740
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	125
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.7	113

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4945

WR-SD-SD075-0000

Lab Sample ID: T914AJ
LIMS ID: 97-17622
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 56.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	3	31,700
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	9	9 ~~U~~ R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	9	9 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	180
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.9
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.3	0.6
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	3	7,210 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.9	26.7
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	23.9
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.3	32.4
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	3	64,500
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	3	24
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	3	5,530
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	909
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	22
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	90	890
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	9	17
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.7
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	9	763
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	9	9 U
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	152
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.7	120

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

00996

JMB 12/18/97

004428

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4947

WR-SD-SD077-0000

Lab Sample ID: T914AK
LIMS ID: 97-17623
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 49.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	4	30,600
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	10	10 ~~U~~ R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	10	10 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	153
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.7
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.4	0.4
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	4	5,970 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	1.0	22.6
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.6	21.3
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.4	29.4
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	4	58,600
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	4	27
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	4	4,310
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	605
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.03
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	21
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	100	820
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	10	14
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.6	1.6
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	10	563
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	10	10 U
3050	10/17/97	6010	11/04/97	7440-32-6	Titanium	1.0	3,200
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.6	147
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.8	124

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4950

WR-SD-SD078-0000

Lab Sample ID: T914AL
LIMS ID: 97-17624
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 62.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/04/97	7429-90-5	Aluminum	3	25,500
3050	10/17/97	6010	11/04/97	7440-36-0	Antimony	8	8 ~~U~~R
3050	10/17/97	6010	11/04/97	7440-38-2	Arsenic	8	8 U
3050	10/17/97	6010	11/04/97	7440-39-3	Barium	0.2	149
3050	10/17/97	6010	11/04/97	7440-41-7	Beryllium	0.2	0.5
3050	10/17/97	6010	11/04/97	7440-43-9	Cadmium	0.3	0.3 U
3050	10/17/97	6010	11/04/97	7440-70-2	Calcium	3	7,010 J
3050	10/17/97	6010	11/04/97	7440-47-3	Chromium	0.8	24.9
3050	10/17/97	6010	11/04/97	7440-48-4	Cobalt	0.5	15.4
3050	10/17/97	6010	11/04/97	7440-50-8	Copper	0.3	25.4
3050	10/17/97	6010	11/04/97	7439-89-6	Iron	3	41,400
3050	10/17/97	6010	11/04/97	7439-92-1	Lead	3	25
3050	10/17/97	6010	11/04/97	7439-95-4	Magnesium	3	5,300
3050	10/17/97	6010	11/04/97	7439-96-5	Manganese	0.2	487
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.10
3050	10/17/97	6010	11/04/97	7440-02-0	Nickel	2	25
3050	10/17/97	6010	11/04/97	7440-09-7	Potassium	80	930
3050	10/17/97	6010	11/04/97	7782-49-2	Selenium	8	11
3050	10/17/97	6010	11/04/97	7440-22-4	Silver	0.5	1.0
3050	10/17/97	6010	11/04/97	7440-23-5	Sodium	8	917
3050	10/17/97	6010	11/04/97	7440-28-0	Thallium	8	8 U
3050	10/17/97	6010	11/04/97	7440-62-2	Vanadium	0.5	89.1
3050	10/17/97	6010	11/04/97	7440-66-6	Zinc	0.6	100

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4952

WR-SD-SD079-0000

Lab Sample ID: T914AM
LIMS ID: 97-17625
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 70.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	1	15,400
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	3	3 U J
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	3	5
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.07	101
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.07	0.33
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.1	0.2
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	1	5,310
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.3	17.7
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.2	12.5 J
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.1	22.6
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	1	29,900
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	1	22
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	1	3,710
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.07	493
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.01	0.02
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	0.7	17.1
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	30	670
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	3	9
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.2	0.6
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	3	713
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	3	3 U
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.2	66.6
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.3	80.4 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

MB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4954

WR-SD-SD086-0000

Lab Sample ID: T914AN
LIMS ID: 97-17626
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 45.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	40,600
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 UJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	183
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,610
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	38.0
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	19.2 J
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	47.5
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	44,200
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	16
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,290
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	633
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,280
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	10
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.1
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,160
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	7
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	110
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	105 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4956

WR-SD-SD082-0000

Lab Sample ID: T914AO
LIMS ID: 97-17627
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	39,700
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 UJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	183
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.4
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,630
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	37.3
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	19.6 J
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	44.8
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,000
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	13
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,320
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	650
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.06
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	31
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,250
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	15
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.0
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,140
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	7
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	106
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	99.5 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4958

WR-SD-SD089-0000

Lab Sample ID: T914AP
LIMS ID: 97-17628
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 50.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	36,800
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	7 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	181
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.56
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,250
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	36.2
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.0 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	39.3
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	42,200
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,780
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	676
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	28.9
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,230
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,110
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	17
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,040
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	104
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	92.3 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

064434

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4960

WR-SD-SD091-0000

Lab Sample ID: T914AQ
LIMS ID: 97-17629
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 49.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	37,100
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	6 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	182
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.57
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,470
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	35.9
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.9 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	40.2
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	41,700
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,810
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	651
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	29.1
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,270
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,160
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	13
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	1,900
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	101
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	91.8 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4961

WR-SD-SD096-0000

Lab Sample ID: T914AR
LIMS ID: 97-17630
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 52.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	33,200
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	6 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	167
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.50
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,910
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.7 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	85.3
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	41,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	35
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,160
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	539
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	27.8
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,220
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	9
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,080
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	15
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,060
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	99.4
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	117 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004436

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4963

WR-SD-SD095-0000

Lab Sample ID: T914AS
LIMS ID: 97-17631
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/11/97

Percent Total Solids: 49.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	40,500
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	7 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.10	189
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.10	0.60
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,850
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	38.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.2 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	41.4
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,000
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	7,080
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.10	736
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1.0	30.0
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,360
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	14
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,300
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	13
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,000
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	105
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	91.5 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4964

WR-SD-SD094-0000

Lab Sample ID: T914AT
LIMS ID: 97-17632
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 50.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	41,000
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	7 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	187
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.59
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,820
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.8
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	18.7 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	39.6
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	42,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	13
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,920
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	708
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	29.4
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,420
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.6
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,370
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	15
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,050
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	106
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	86.6 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

01006

004438

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4965

WR-SD-SD099-0000

Lab Sample ID: T914AU
LIMS ID: 97-17633
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 44.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	45,000
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	8 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	190
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	9,190
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	40.7
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.4 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	49.6
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	45,200
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	19
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	7,300
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	658
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.07
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,570
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	11
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.8
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,460
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	14
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,190
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	112
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	104 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

004439

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4966

WR-SD-SD098-0000

Lab Sample ID: T914AV
LIMS ID: 97-17634
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 47.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	38,900
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	8 J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.1	190
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.1	0.6
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,340
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	37.1
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	19.1 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	44.9
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	43,200
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	15
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,980
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.1	725
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	1	29
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,270
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	15
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.6
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,140
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	17
3050	10/17/97	6010	10/30/97	7440-32-6	Titanium	0.5	2,010
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	106
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	91.2 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

0044410

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4967
WR-SD-SD103-0000

Lab Sample ID: T914AW
LIMS ID: 97-17635
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/11/97

Percent Total Solids: 43.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	11/03/97	7429-90-5	Aluminum	2	38,500
3050	10/17/97	6010	11/03/97	7440-36-0	Antimony	5	5 UJ
3050	10/17/97	6010	11/03/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	11/03/97	7440-39-3	Barium	0.1	178
3050	10/17/97	6010	11/03/97	7440-41-7	Beryllium	0.1	0.7
3050	10/17/97	6010	11/03/97	7440-43-9	Cadmium	0.2	0.5
3050	10/17/97	6010	11/03/97	7440-70-2	Calcium	2	8,520
3050	10/17/97	6010	11/03/97	7440-47-3	Chromium	0.5	38.0
3050	10/17/97	6010	11/03/97	7440-48-4	Cobalt	0.3	18.8 J
3050	10/17/97	6010	11/03/97	7440-50-8	Copper	0.2	54.5
3050	10/17/97	6010	11/03/97	7439-89-6	Iron	2	43,700
3050	10/17/97	6010	11/03/97	7439-92-1	Lead	2	18
3050	10/17/97	6010	11/03/97	7439-95-4	Magnesium	2	7,170
3050	10/17/97	6010	11/03/97	7439-96-5	Manganese	0.1	638
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.08
3050	10/17/97	6010	11/03/97	7440-02-0	Nickel	1	30
3050	10/17/97	6010	11/03/97	7440-09-7	Potassium	50	1,210
3050	10/17/97	6010	11/03/97	7782-49-2	Selenium	5	13
3050	10/17/97	6010	11/03/97	7440-22-4	Silver	0.3	1.1
3050	10/17/97	6010	11/03/97	7440-23-5	Sodium	5	1,030
3050	10/17/97	6010	11/03/97	7440-28-0	Thallium	5	5 U
3050	10/17/97	6010	11/03/97	7440-32-6	Titanium	0.5	1,910
3050	10/17/97	6010	11/03/97	7440-62-2	Vanadium	0.3	106
3050	10/17/97	6010	11/03/97	7440-66-6	Zinc	0.4	113 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97384909

WR-SD-SD045-0000

Lab Sample ID: T923A
LIMS ID: 97-17682
Matrix: Sediment

QC Report No: T923-Roy F. Weston
Project: PSR

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 53.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	34,700
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	166
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.57
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,100 ~~J~~
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	33.6 ~~J~~
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.2 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	34.6
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	38,900
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	14
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,290
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	637
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 ~~J~~
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	28.4
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,220
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	12
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,180
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	20
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	98.2
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	87.0 J

JMB JME

JMI

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97384910

WR-SD-SD 047-0000

Lab Sample ID: T923B
LIMS ID: 97-17683
Matrix: Sediment

QC Report No: T923-Roy F. Weston
Project: PSR

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized
Reported: 11/14/97

Percent Total Solids: 56.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	29,100
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	4	4 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	4	4 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	142
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.51
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.2 U
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,010 J
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.4	27.7
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	16.2 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	30.3
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	35,900
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	12
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	5,360
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	572
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04 J
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	24.4
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	40	1,070
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	4	10
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	4	1,010
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	4	20
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	87.4
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.3	82.0 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

01011

004443

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97384911

WR-SD-SD046-0000

Lab Sample ID: T923C
LIMS ID: 97-17684
Matrix: Sediment

QC Report No: T923-Roy F. Weston
Project: PSR

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 50.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	36,900
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	173
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.60
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	8,240 ~~J~~ JMB
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	34.5
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	17.5 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	36.4
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	39,700
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	13
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,560
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	638
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.04 ~~J~~ JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	28.9
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,230
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	8
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.6
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,220
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	22
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	99.0
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	87.6 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

01012

004444

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97384912

WR-SD-SD050-0000

Lab Sample ID: T923D
LIMS ID: 97-17685
Matrix: Sediment

QC Report No: T923-Roy F. Weston
Project: PSR

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 11/14/97

Percent Total Solids: 52.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/17/97	6010	10/30/97	7429-90-5	Aluminum	2	33,200
3050	10/17/97	6010	10/30/97	7440-36-0	Antimony	5	5 U J
3050	10/17/97	6010	10/30/97	7440-38-2	Arsenic	5	5 U
3050	10/17/97	6010	10/30/97	7440-39-3	Barium	0.09	162
3050	10/17/97	6010	10/30/97	7440-41-7	Beryllium	0.09	0.55
3050	10/17/97	6010	10/30/97	7440-43-9	Cadmium	0.2	0.3
3050	10/17/97	6010	10/30/97	7440-70-2	Calcium	2	7,920 b JMB
3050	10/17/97	6010	10/30/97	7440-47-3	Chromium	0.5	31.9
3050	10/17/97	6010	10/30/97	7440-48-4	Cobalt	0.3	16.8 J
3050	10/17/97	6010	10/30/97	7440-50-8	Copper	0.2	35.5
3050	10/17/97	6010	10/30/97	7439-89-6	Iron	2	37,400
3050	10/17/97	6010	10/30/97	7439-92-1	Lead	2	13
3050	10/17/97	6010	10/30/97	7439-95-4	Magnesium	2	6,120
3050	10/17/97	6010	10/30/97	7439-96-5	Manganese	0.09	595
CLP	10/17/97	7471	10/18/97	7439-97-6	Mercury	0.02	0.05 b JMB
3050	10/17/97	6010	10/30/97	7440-02-0	Nickel	0.9	26.4
3050	10/17/97	6010	10/30/97	7440-09-7	Potassium	50	1,110
3050	10/17/97	6010	10/30/97	7782-49-2	Selenium	5	9
3050	10/17/97	6010	10/30/97	7440-22-4	Silver	0.3	0.7
3050	10/17/97	6010	10/30/97	7440-23-5	Sodium	5	1,130
3050	10/17/97	6010	10/30/97	7440-28-0	Thallium	5	20
3050	10/17/97	6010	10/30/97	7440-62-2	Vanadium	0.3	92.5
3050	10/17/97	6010	10/30/97	7440-66-6	Zinc	0.4	85.4 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 12/18/97

1.8

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Seattle, Washington 98104-5057
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MANAGERS DESIGNERS/CONSULTANTS

RECEIVED
JAN 29 1998
Environmental Cleanup Office

MEMORANDUM

DATE: 19 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RNM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: T971
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAX

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 68 samples, SDG T971, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97384968	97394715	97394731	97394748	97394764
97384970	97394716	97394732	97394749	97394765
97394700	97394718	97394733	97394750	97394766
97394702	97394719	97394734	97394751	97394767
97394704	97394720	97394736	97394752	97394768
97394705	97394722	97394738	97394753	97394770
97394706	97394723	97394739	97394755	97394771
97394707	97394724	97394741	97394756	97394772
97394708	97394725	97394742	97394758	97394775
97394710	97394726	97394743	97394759	97394776
97394711	97394727	97394744	97394760	97394777
97394712	97394728	97394745	97394761	97394778
97394713	97394729	97394746	97394762	
97394714	97394730	97394747	97394763	

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Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

1. Holding Times

All samples met holding time criteria, with the exception of the following:

Sample ID	Collection Date	Analysis Date for Mercury	No. of Days	Holding Time Limit
97384968	9/21/97	10/20/97	29	28 days
97384970	9/21/97	10/20/97	29	28 days
97394700	9/21/97	10/20/97	29	28 days
97394702	9/21/97	10/20/97	29	28 days
97394704	9/21/97	10/20/97	29	28 days
97394705	9/21/97	10/20/97	29	28 days
97394706	9/21/97	10/20/97	29	28 days
97394707	9/21/97	10/20/97	29	28 days
97394708	9/21/97	10/20/97	29	28 days
97394710	9/21/97	10/20/97	29	28 days
97394750	9/23/97	10/31/97	38	28 days

Samples were stored at -18°C upon receipt by the laboratory and, thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

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b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration except for 2CCV5 (sodium 88.6%). No samples were associated with this calibration so data qualification was not required.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

Blank ID	Analyte	Concentration (mg/kg)	Affected Samples
Method Blank (lim #97-18025)	Aluminum	1	None
	Sodium	7	
	Zinc	0.3	
Method Blank (lim #97-18045)	Aluminum	2	None
	Sodium	3	
Method Blank (lim #97-18069)	Aluminum	1	None
	Sodium	4	
Method Blank (lim #97-18085)	Sodium	10	None

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Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the five times criterion.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
1CCB3	Copper	2	97394723, 97394710, 97394711, 97394713, 97394714, 97394715

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the five times criterion.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the established control limits for sediment.

7. Laboratory Duplicate Sample Analysis

Relative percent difference between laboratory duplicate results exceeded QC limits of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment for the following analytes:

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JRM

Sample ID	Analyte	Sample Concentration (mg/kg)	Duplicate Concentration (mg/kg)	RPD	Control Limit
97394768	Cadmium	0.5	1.4	--	±0.4
	Copper	47.9	84.1	54.8	35%
	Lead	17	85	113	35%
	Zinc	113	292	88.4	35%

Results for the above analytes have been qualified as estimated (J).

8. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery	Associated Samples
97384968	Antimony	15.1	97384968, 97384970, 97384700, 97384702, 97384704, 97384705, 97384706, 97384707, 97384708, 97384710, 97384711, 97384712, 97384713, 97384714, 97384715, 97384716, 97384718, 97384719, 97384720, 97384722
97394723	Antimony Calcium	13.6 153	97384723, 97384724, 97384725, 97384726, 97384727, 97384728, 97384729, 97384730, 97384731, 97384732, 97384733, 97384734, 97384736, 97384738, 97384739, 97384741, 97384742, 97384743, 97384744, 97384745

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Sample	Analyte	Percent Recovery	Associated Samples
97394750	Antimony Sodium	24.4 126	97384746, 97384747, 97384748, 97384749, 97384750, 97384751, 97384752, 97384753, 97384755, 97384756, 97384578, 97384579, 97384760, 97384761, 97384762, 97384763, 97384764, 97384765, 97384766, 97384767
97394768	Antimony Calcium	33.9 138	97384768, 97384770, 97384771, 97384772, 97384775, 97384776, 97384777, 97384778

Positive results for the above analytes were qualified as estimated (J). Antimony results may exhibit a low bias while sodium and calcium results may be biased high. Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ).

9. Post Digest Spike Recovery

The following samples had post digestion spike recoveries outside of the QC limit of 85 to 115 percent:

Sample	Element	Percent Recovery
97394768	Antimony	140.5

High post-digest spike recoveries suggest low matrix spike recoveries may be due to antimony loss during sample digestion.

10. ICP Serial Dilution

The percent differences (percent D) for ICP serial dilution analysis were within the QC limits of 10 percent for all parameters.

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11. Field Duplicate Analysis

Samples 97394712/97394713, 97394729/97394730, 97394750/97394751, 97394765/97394766, and 97394777/97394778 were field duplicates. Results exhibited reasonable agreement with the exception of the following:

Field Duplicates	Analyte	Original Concentration	Duplicate Concentration	RPD
97394712/97394713	Copper	28.3	19.8	35.3
	Iron	40600	25800	44.6
	Lead	186	8	183.5
97394750/97394751	Lead	11	20	58.1
97394777/97394778	Copper	72.7	40.8	56.2
	Lead	80	14	140.4
	Nickel	38	25.9	37.9
	Zinc	265	97.8	92.2

No data were qualified since field duplicates reflect field variations in sample concentrations.

12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

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R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4968

WR-SD-SD102-0000

Lab Sample ID: T971A
LIMS ID: 97-18025
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 47.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	45,500
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 UJ
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	180
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,530
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.9
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	19.1
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	45.8
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	9
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,860
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	719
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06 ~~7~~ JMB
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	31
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,400
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	14
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,110
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	10
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,140
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	108
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	90.5

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9738 4970

WR-SD-SD101-0000

Lab Sample ID: T971B
LIMS ID: 97-18026
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 49.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	41,400
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 UJ
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	178
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.67
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.3
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,930
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	36.8
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.0
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	44.3
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	42,100
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	9
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,260
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	664
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05 ~~J~~ JMB
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	29.5
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,380
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	12
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,280
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	8
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,040
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	104
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	98.1

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4700

WR-SD-SD080-0000

Lab Sample ID: T971C
LIMS ID: 97-18027
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 46.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	40,000
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	175
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,580
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.1
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.3
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	42.6
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	14
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	6,970
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	693
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06 ~~J~~
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,380
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	14
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,190
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	5 U
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	106
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	131

gmB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4702
WR-SD-SD081-0000

Lab Sample ID: T971D
LIMS ID: 97-18028
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 59.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/05/97	7429-90-5	Aluminum	3	31,100
3050	10/18/97	6010	11/05/97	7440-36-0	Antimony	8	8 U J
3050	10/18/97	6010	11/05/97	7440-38-2	Arsenic	8	8 U
3050	10/18/97	6010	11/05/97	7440-39-3	Barium	0.2	159
3050	10/18/97	6010	11/05/97	7440-41-7	Beryllium	0.2	0.5
3050	10/18/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.4
3050	10/18/97	6010	11/05/97	7440-70-2	Calcium	3	8,000
3050	10/18/97	6010	11/05/97	7440-47-3	Chromium	0.8	32.3
3050	10/18/97	6010	11/05/97	7440-48-4	Cobalt	0.5	16.1
3050	10/18/97	6010	11/05/97	7440-50-8	Copper	0.3	29.8
3050	10/18/97	6010	11/05/97	7439-89-6	Iron	3	44,100
3050	10/18/97	6010	11/05/97	7439-92-1	Lead	3	23
3050	10/18/97	6010	11/05/97	7439-95-4	Magnesium	3	6,350
3050	10/18/97	6010	11/05/97	7439-96-5	Manganese	0.2	360
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05 J
3050	10/18/97	6010	11/05/97	7440-02-0	Nickel	2	26
3050	10/18/97	6010	11/05/97	7440-09-7	Potassium	80	1,040
3050	10/18/97	6010	11/05/97	7782-49-2	Selenium	8	10
3050	10/18/97	6010	11/05/97	7440-22-4	Silver	0.5	1.0
3050	10/18/97	6010	11/05/97	7440-23-5	Sodium	8	1,130
3050	10/18/97	6010	11/05/97	7440-28-0	Thallium	8	8 U
3050	10/18/97	6010	11/05/97	7440-62-2	Vanadium	0.5	97.5
3050	10/18/97	6010	11/05/97	7440-66-6	Zinc	0.7	95.4

gmB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4704
WR-SD-SD083-0000

Lab Sample ID: T971E
LIMS ID: 97-18029
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 40.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	41,500
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	6	6 UJ
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	6	6 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	189
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.6
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,730
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.6	40.5
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.4	17.5
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	53.3
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,500
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	18
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,500
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	533
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.08 ~~J~~ JMB
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	60	1,400
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	6	16
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.4	1.4
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	6	1,170
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	6	10
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.4	105
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.5	138

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4705
WR-SD-SD084-0000

Lab Sample ID: T971F
LIMS ID: 97-18030
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 50.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	41,700
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 UJ
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	173
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.65
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.3
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,980
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.8
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.2
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	39.9
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	41,500
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	11
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,080
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	575
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05 ~~J~~
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	28.2
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,410
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	13
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,490
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	8
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	101
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	94.2

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/19/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4706
WR-SD-SD085-0000

Lab Sample ID: T971G
LIMS ID: 97-18031
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 50.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	38,900
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	178
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.62
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	7,500
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	44.6
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.7
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	50.0
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	42,500
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	20
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	6,750
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	484
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07 J
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	38.5
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,320
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	12
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	3,960
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	8
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	99.6
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	133

JMB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 11/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4707

WR-SD- SD087-0000

Lab Sample ID: T971H
LIMS ID: 97-18032
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 49.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	39,500
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	179
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.62
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,390
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	39.1
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.3
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	44.8
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	41,500
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	17
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	6,920
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	594
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06 J
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	30.5
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,320
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	15
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,640
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	8
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	97.7
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	111

gmB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4708

WR-SD-SD088-0000

Lab Sample ID: T971I
LIMS ID: 97-18033
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 47.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	42,700
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	193
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	7,750
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	42.8
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.8
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	53.4
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	21
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,110
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	456
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.08 J GMB
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	34
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,420
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	13
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.3
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	5,760
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	7
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	107
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	136

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

159 GMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4710
WR-SD-SD090-0000

Lab Sample ID: T971J
LIMS ID: 97-18034
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 49.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	40,300
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	176
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.64
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,230
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	39.7
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.7
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	40.6
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	41,300
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	22
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,040
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	567
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.09 J
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	30.3
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,290
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	13
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.0
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	2,420
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	7
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	98.1
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	99.2

gmB

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

160
gmB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4711
WR-SD-SD093-0000

Lab Sample ID: T971K
LIMS ID: 97-18035
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	42,700
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	183
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,290
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	41.0
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.9
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	44.2
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,600
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	12
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,240
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	683
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,440
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	13
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,150
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	15
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	111
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	107

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

161 MB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4712
WR-SD-SD092-0000

Lab Sample ID: T971L
LIMS ID: 97-18036
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 69.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/05/97	7429-90-5	Aluminum	3	22,400
3050	10/18/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/18/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/18/97	6010	11/05/97	7440-39-3	Barium	0.1	86.8
3050	10/18/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.4
3050	10/18/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.3
3050	10/18/97	6010	11/05/97	7440-70-2	Calcium	3	6,130
3050	10/18/97	6010	11/05/97	7440-47-3	Chromium	0.7	29.6
3050	10/18/97	6010	11/05/97	7440-48-4	Cobalt	0.4	12.1
3050	10/18/97	6010	11/05/97	7440-50-8	Copper	0.3	28.3
3050	10/18/97	6010	11/05/97	7439-89-6	Iron	3	40,600
3050	10/18/97	6010	11/05/97	7439-92-1	Lead	3	186
3050	10/18/97	6010	11/05/97	7439-95-4	Magnesium	3	4,140
3050	10/18/97	6010	11/05/97	7439-96-5	Manganese	0.1	335
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.01	0.04
3050	10/18/97	6010	11/05/97	7440-02-0	Nickel	1	26
3050	10/18/97	6010	11/05/97	7440-09-7	Potassium	70	770
3050	10/18/97	6010	11/05/97	7782-49-2	Selenium	7	10
3050	10/18/97	6010	11/05/97	7440-22-4	Silver	0.4	0.9
3050	10/18/97	6010	11/05/97	7440-23-5	Sodium	7	2,450
3050	10/18/97	6010	11/05/97	7440-28-0	Thallium	7	7 U
3050	10/18/97	6010	11/05/97	7440-32-6	Titanium	0.7	1,740
3050	10/18/97	6010	11/05/97	7440-62-2	Vanadium	0.4	91.7
3050	10/18/97	6010	11/05/97	7440-66-6	Zinc	0.6	72.1

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4713

WR-SD-SD092-1000

Lab Sample ID: T971M
LIMS ID: 97-18037
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 69.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	1	21,200
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	4	4 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	4	4 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.07	81.7
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.07	0.41
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.1	0.2
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	1	5,380
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.4	22.5
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.2	10.1
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.1	19.8
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	1	25,800
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	1	8
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	1	3,880
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.07	261
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.01	0.05
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	0.7	19.7
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	40	770
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	4	10
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.2	0.7
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	4	2,310
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	4	4
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.4	1,630
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.2	82.7
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.3	62.7

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

163

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4714
WR-SD-SD097-0000

Lab Sample ID: T971N
LIMS ID: 97-18038
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 50.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	42,400
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	197
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.66
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	7,600
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	50.6
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.5
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	57.5
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	43,900
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	15
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	6,890
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	457
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.12
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	32.7
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,600
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	11
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	12,700
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	11
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	103
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	105

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

164
JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4715
WR-SD-SD100-0000

Lab Sample ID: T9710
LIMS ID: 97-18039
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 59.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	27,000
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	4	4 UJ
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	4	4 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.08	126
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.08	0.47
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.2
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	5,940
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.4	27.6
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.2	12.2
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	23.2
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	29,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	11
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	4,390
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.08	377
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.04
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	0.8	18.9
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	40	1,160
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	4	9
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.2	0.8
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	4	979
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	4	8
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.2	73.7
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.3	64.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4716

WR-SD-SD106-0000

Lab Sample ID: T971P
LIMS ID: 97-18040
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 50.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	43,000
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.10	180
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.10	0.68
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.3
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	9,030
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.6
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.2
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	47.8
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	42,800
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	10
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,290
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.10	686
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1.0	29.8
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,470
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	13
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,310
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	10
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,060
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	106
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	94.0

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

166
JMB
1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4718

WR-SD-SD108-0000

Lab Sample ID: T971Q
LIMS ID: 97-18041
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	44,900
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	183
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,900
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	38.2
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.2
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	50.6
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	43,500
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	9
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,360
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	710
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,560
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	18
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,310
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	11
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,120
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	108
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	92.6

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

167 JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4719

WR-SD-SD111-0000

Lab Sample ID: T971R
LIMS ID: 97-18042
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	43,400
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	180
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,700
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	37.3
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.5
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	49.5
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	43,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	12
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,350
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	727
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,460
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	14
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.2
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,200
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	10
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,030
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	105
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	98.1

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4720

WR-SD-SD116-0000

Lab Sample ID: T971S
LIMS ID: 97-18043
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 46.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	42,000
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	176
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.3
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,390
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	36.6
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	17.6
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	51.3
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	42,200
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	13
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,170
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	674
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,400
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	16
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.0
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,170
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	10
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,020
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	103
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	94.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4722
WR-SD-SD119-0000

Lab Sample ID: T971T
LIMS ID: 97-18044
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/18/97	6010	11/04/97	7429-90-5	Aluminum	2	44,000
3050	10/18/97	6010	11/04/97	7440-36-0	Antimony	5	5 U J
3050	10/18/97	6010	11/04/97	7440-38-2	Arsenic	5	5 U
3050	10/18/97	6010	11/04/97	7440-39-3	Barium	0.1	183
3050	10/18/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/18/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/18/97	6010	11/04/97	7440-70-2	Calcium	2	8,840
3050	10/18/97	6010	11/04/97	7440-47-3	Chromium	0.5	38.1
3050	10/18/97	6010	11/04/97	7440-48-4	Cobalt	0.3	18.3
3050	10/18/97	6010	11/04/97	7440-50-8	Copper	0.2	52.4
3050	10/18/97	6010	11/04/97	7439-89-6	Iron	2	44,000
3050	10/18/97	6010	11/04/97	7439-92-1	Lead	2	11
3050	10/18/97	6010	11/04/97	7439-95-4	Magnesium	2	7,420
3050	10/18/97	6010	11/04/97	7439-96-5	Manganese	0.1	718
CLP	10/18/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/18/97	6010	11/04/97	7440-02-0	Nickel	1	30
3050	10/18/97	6010	11/04/97	7440-09-7	Potassium	50	1,520
3050	10/18/97	6010	11/04/97	7782-49-2	Selenium	5	12
3050	10/18/97	6010	11/04/97	7440-22-4	Silver	0.3	1.1
3050	10/18/97	6010	11/04/97	7440-23-5	Sodium	5	1,280
3050	10/18/97	6010	11/04/97	7440-28-0	Thallium	5	9
3050	10/18/97	6010	11/04/97	7440-32-6	Titanium	0.5	2,170
3050	10/18/97	6010	11/04/97	7440-62-2	Vanadium	0.3	109
3050	10/18/97	6010	11/04/97	7440-66-6	Zinc	0.4	98.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4723

WR-SD-SD122-0000

Lab Sample ID: T971U
LIMS ID: 97-18045
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 41.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/04/97	7429-90-5	Aluminum	2	40,300
3050	10/20/97	6010	11/04/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/04/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/04/97	7440-39-3	Barium	0.1	173
3050	10/20/97	6010	11/04/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/04/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/04/97	7440-70-2	Calcium	2	7,980 J
3050	10/20/97	6010	11/04/97	7440-47-3	Chromium	0.6	35.3
3050	10/20/97	6010	11/04/97	7440-48-4	Cobalt	0.4	17.9
3050	10/20/97	6010	11/04/97	7440-50-8	Copper	0.2	64.1
3050	10/20/97	6010	11/04/97	7439-89-6	Iron	2	42,400
3050	10/20/97	6010	11/04/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/04/97	7439-95-4	Magnesium	2	7,040
3050	10/20/97	6010	11/04/97	7439-96-5	Manganese	0.1	741
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/04/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/04/97	7440-09-7	Potassium	60	1,270
3050	10/20/97	6010	11/04/97	7782-49-2	Selenium	6	16
3050	10/20/97	6010	11/04/97	7440-22-4	Silver	0.4	1.1
3050	10/20/97	6010	11/04/97	7440-23-5	Sodium	6	984
3050	10/20/97	6010	11/04/97	7440-28-0	Thallium	6	8
3050	10/20/97	6010	11/04/97	7440-32-6	Titanium	0.6	1,930
3050	10/20/97	6010	11/04/97	7440-62-2	Vanadium	0.4	102
3050	10/20/97	6010	11/04/97	7440-66-6	Zinc	0.5	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4724
WR-SD-SD121-0000

Lab Sample ID: T971V
LIMS ID: 97-18046
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 47.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	35,500
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 UJ
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	171
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,900 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	33.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.7
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	56.6
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	39,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	9
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,780
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	690
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,100
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	937
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	6
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,790
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	97.8
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	92.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

172 JMB 1/9/9

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4725
WR-SD-SD129-0000

Lab Sample ID: T971W
LIMS ID: 97-18047
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 41.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	38,600
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	197
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.7
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,940 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	40.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	131
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	47,300
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	38
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,990
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	698
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.16
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,210
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.4
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,090
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	11
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	108
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	279

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4726
WR-SD-SD134-0000

Lab Sample ID: T971X
LIMS ID: 97-18048
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 35.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	46,100
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	211
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.8
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	11,800 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.7	56.4
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	20.6
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	169
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	55,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	40
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	8,560
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	837
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.03	0.12
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	35
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	70	1,520
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	7	18
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	7	1,050
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	7	15
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	119
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	335

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

174 MMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4727

WR-SD-SD136-0000

Lab Sample ID: T971Y
LIMS ID: 97-18049
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 69.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	15,400
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	138
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.3
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	1.0
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	6,310 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.7	24.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	12.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	81.5
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	37,900
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	24
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	4,090
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	323
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.01	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	20
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	70	570
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	7	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	7	763
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	7	7 U
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	68.6
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.6	178

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

175 JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4728

WR-SD-SD139-0000

Lab Sample ID: T971Z
LIMS ID: 97-18050
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 33.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	46,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	276
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.8
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	8,600 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.7	51.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	20.1
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	133
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	55,600
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	44
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	7,840
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	845
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.03	0.16
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	33
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	70	1,510
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	7	20
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	7	977
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	7	10
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	123
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.6	465

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4729

WR-SD-SD141-0000

Lab Sample ID: T971AA
LIMS ID: 97-18051
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 33.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	43,800
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	196
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	8,150 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.7	44.2
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	19.1
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	95.1
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	51,900
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	36
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	7,410
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	769
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.03	0.15
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	32
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	70	1,420
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	7	17
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	7	996
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	7	10
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.7	2,170
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	122
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.6	275

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

177 JMB
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4730
WR-SD-SD141-1000

Lab Sample ID: T971AB
LIMS ID: 97-18052
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 33.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	42,100
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	7	7 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	7	7 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	192
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	7,920 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.7	42.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.9
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	96.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	51,000
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	35
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	7,230
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	760
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.03	0.15
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	70	1,350
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	7	18
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	7	936
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	7	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.7	2,070
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	119
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.6	282

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

178

01049

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4731

WR-SD- SD148-0000

Lab Sample ID: T971AC
LIMS ID: 97-18053
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 48.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	34,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	163
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.5
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,990 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	35.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	16.3
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	65.4
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	40,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	27
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,340
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	520
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.16
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,120
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	1.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,130
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	8
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	99.5
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	199

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

179
JMB
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4732

WR-SD-SD124-0000

Lab Sample ID: T971AD
LIMS ID: 97-18054
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	39,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	188
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,570 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	37.1
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.9
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	126
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,800
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	16
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,160
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	772
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,230
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	1.0
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,020
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	5 U
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,960
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	107
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	122

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

180 JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4733

WR-SD-SD126-0000

Lab Sample ID: T971AE
LIMS ID: 97-18055
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 38.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	3	42,100
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	176
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.3	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	3	8,430 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	37.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.7
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.3	71.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	3	45,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	3	16
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	3	7,340
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	734
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.03	0.10
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,340
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	13
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.3
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,050
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.6	2,060
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	111
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	129

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 11/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4734

WR-SD- SD128-0000

Lab Sample ID: T971AF
LIMS ID: 97-18056
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 42.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	40,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	8
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	212
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	11,400 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	67.5
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	19.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	404
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	47,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	110
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,760
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	791
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.86
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	36
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,330
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.4
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,100
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.6	1,880
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	106
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	361

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4736

WR-SD-SD125-0000

Lab Sample ID: T971AG
LIMS ID: 97-18057
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 44.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,600
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	171
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,970 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	34.7
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	65.7
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	41,200
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,900
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	742
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,150
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	14
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	1.1
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	947
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	11
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.6	1,790
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	101
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	104

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

183

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4738

WR-SD-SD127-0000

Lab Sample ID: T971AH
LIMS ID: 97-18058
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 46.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	175
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,350 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	35.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.4
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	56.4
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	41,600
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,000
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	779
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,170
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	16
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	1.1
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	975
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	10
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,930
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	96.7

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

184 JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4739

WR-SD-SD130-0000

Lab Sample ID: T971AI
LIMS ID: 97-18059
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	39,500
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	181
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,460 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	36.1
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	74.5
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,300
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,140
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	793
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,250
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	1.2
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	985
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	8
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,890
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	106

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4741

WR-SD- SD104-0000

Lab Sample ID: T971AJ
LIMS ID: 97-18060
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 54.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	29,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.09	134
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.09	0.49
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	4,430 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	28.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	12.7
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	30.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	32,800
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	10
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	4,960
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.09	277
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.9	20.7
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,060
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	21,500
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	5
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	79.0
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	69.5

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4742

WR-SD-SD105-0000

Lab Sample ID: T971AK
LIMS ID: 97-18061
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 42.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	40,700
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	176
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,230 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	37.5
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	43.3
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,900
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	11
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,930
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	688
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,260
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	13
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	1.2
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,410
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	10
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	107
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	97.1

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4743

WR-SD- SD107-0000

Lab Sample ID: T971AL
LIMS ID: 97-18062
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 41.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	42,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	179
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,380 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	38.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	44.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,600
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	16
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,150
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	676
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,360
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,120
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	6
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	109
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	108

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4744

WR-SD-SD109-0000

Lab Sample ID: T971AM
LIMS ID: 97-18063
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 43.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	41,700
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	180
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,370 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	37.7
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.7
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	47.6
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	16
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,360
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	721
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	30
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,300
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,010
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	10
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	108
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	112

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

189 JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4745

WR-SD-SD110-0000

Lab Sample ID: T971AN
LIMS ID: 97-18064
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 43.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	42,500
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	188
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,630 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	37.7
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	48.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,800
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,620
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	836
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,300
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	14
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,010
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	11
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	109
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	108

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

190

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4746

WR-SD-SD112-0000

Lab Sample ID: T971AO
LIMS ID: 97-18065
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 44.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	42,800
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	183
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,270
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	37.5
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	46.9
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,400
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,360
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	715
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,350
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	13
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,060 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	8
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	109
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	108

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

01062

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4747

WR-SD-SD113-0000

Lab Sample ID: T971AP
LIMS ID: 97-18066
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 42.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	43,700
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	190
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,690
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	38.9
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	19.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	45.9
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	44,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	13
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,520
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	801
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,350
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,120 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	11
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	110
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	105

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

192

01063

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4748

WR-SD- SD114-0000

Lab Sample ID: T971AQ
LIMS ID: 97-18067
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 69.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	1	15,800
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	3	3 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	3	3 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.07	113
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.07	0.33
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	1	5,370
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.3	24.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.2	13.3
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.1	28.7
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	1	31,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	1	47
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	1	3,720
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.07	393
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.01	0.02
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.7	26.5
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	30	690
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	3	9
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	3	778 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	3	7
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.2	73.7
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	212

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

193

gmB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4749

WR-SD-SD115-0000

Lab Sample ID: T971AR
LIMS ID: 97-18068
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 44.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	43,800
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	187
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,810
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	38.5
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.9
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	45.1
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,600
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,520
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	770
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,400
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,170 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	10
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	110
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

194

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4750

WR-SD-SD117-0000

Lab Sample ID: T971AS
LIMS ID: 97-18069
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 58.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	28,500
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	4 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.08	148
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.08	0.52
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,790
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	27.9
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.2	15.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	29.7
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	34,500
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	11
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,250
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.08	467
CLP	10/30/97	7471	10/31/97	7439-97-6	Mercury	0.02	0.11 J JMB
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.8	24.1
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	1,170
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.2	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	1,040 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	7
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.4	1,790
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.2	88.0
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	97.4

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

195
JMB
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4751

WR-SD-SD117-1000

Lab Sample ID: T971AT
LIMS ID: 97-18070
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 58.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	28,600
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	4 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.08	153
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.08	0.48
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,710
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	28.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.2	16.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	29.7
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	35,200
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	20
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,380
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.08	464
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.09
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.8	24.4
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	1,190
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	1,050 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.4	1,900
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.2	91.8
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4752

WR-SD-SD118-0000

Lab Sample ID: T971AU
LIMS ID: 97-18071
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 58.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	28,400
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	4 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.08	144
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.08	0.43
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,460
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	27.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.1
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	27.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	35,400
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	5,810
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.08	482
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.8	26.5
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	970
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	8
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	1,040 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	8
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	91.2
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	89.2

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4753

WR-SD-SD133-0000

Lab Sample ID: T971AV
LIMS ID: 97-18072
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 47.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	7 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	16
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	234
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	14,400
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	48.1
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	543
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	50,500
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	70
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,750
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	793
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.30
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,420
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	982 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	11
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,920
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	539

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

198 MB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4755

WR-SD- SD132-0000

Lab Sample ID: T971AX
LIMS ID: 97-18073
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 53.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,600
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.09	186
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.09	0.59
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.3
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,690
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	35.4
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.7
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	64.1
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	40,500
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,060
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.09	660
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.9	29.6
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	1,190
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	1,170 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	8
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	102
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

199 JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4756

WR-SD-SD020-0000

Lab Sample ID: T971AY
LIMS ID: 97-18074
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 48.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	39,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.09	187
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.09	0.63
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,500
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	36.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	41.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	41,800
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	12
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,190
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.09	772
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.9	29.9
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,250
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,080 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	8
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,960
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	92.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

200
JMB
1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4758

WR-SD- SD138-0000

Lab Sample ID: T971AZ
LIMS ID: 97-18075
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 44.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	41,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	186
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,770
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	38.2
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.1
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	56.3
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,400
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	15
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,270
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	670
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	30
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,310
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	13
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,140 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,980
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	112

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

201

JMB 1/9/98

01072

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4759

WR-SD-SD145-0000

Lab Sample ID: T971BA
LIMS ID: 97-18076
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 56.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	31,700
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.08	160
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.08	0.48
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,770
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	33.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	38.3
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	38,100
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,330
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.08	566
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.8	28.1
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	990
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	7
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.5
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	1,030 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	6
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.4	1,870
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	95.5
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

202
JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4760

WR-SD-SD150-0000

Lab Sample ID: T971BB
LIMS ID: 97-18077
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 57.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	25,900
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	4	5 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	4	4 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.08	148
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.08	0.45
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	6,440
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.4	27.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.2	14.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	32.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	35,300
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	25
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,020
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.08	475
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.8	23.3
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	40	1,180
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	4	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	4	805 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	4	4 U
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.4	1,850
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.2	84.6
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.3	188

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

203

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4761

WR-SD-SD120-0000

Lab Sample ID: T971BC
LIMS ID: 97-18078
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 42.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	42,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	177
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,430
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	38.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	42.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,300
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	17
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,000
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	677
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,390
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,140 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	6
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	104

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4762

WR-SD-SD123-0000

Lab Sample ID: T971BD
LIMS ID: 97-18079
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 49.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,400
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.10	168
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.10	0.59
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,730
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	33.7
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	41.5
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	38,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,820
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.10	631
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1.0	28.1
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,110
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	9
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	959 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	6
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	94.3
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	97.2

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

205

01076

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4763

WR-SD-SD131-0000

Lab Sample ID: T971BE
LIMS ID: 97-18080
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	36,600
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.09	170
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.09	0.56
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,050
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	34.7
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.4
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	39.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	38,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	20
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,670
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.09	542
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.9	28.0
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,120
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,080 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	9
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	94.2
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	126

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

206

JMB 1/9/98

01077

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4764

WR-SD-SD135-0000

Lab Sample ID: T971BF
LIMS ID: 97-18081
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	33,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.09	157
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.09	0.53
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,310
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	31.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	15.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	37.3
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	35,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	16
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,120
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.09	505
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	0.9	26.0
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,110
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	9
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	924 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	10
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	87.5
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	103

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

207

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4765

WR-SD-SD137-0000

Lab Sample ID: T971BG
LIMS ID: 97-18082
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 48.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	37,900
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	181
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,250
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	37.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	42.1
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	41,400
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	15
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,040
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	573
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,180
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,060 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	9
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,950
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	102
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	103

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

208
JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4766

WR-SD- SD137-1000

Lab Sample ID: T971BH
LIMS ID: 97-18083
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 49.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	38,400
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	179
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,240
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	36.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	17.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	42.2
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	41,000
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	17
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,960
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	563
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.07
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	28
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,170
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,090 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	15
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,960
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	101
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	101

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

209
JMB
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4767

WR-SD- SD140-0000

Lab Sample ID: T971BI
LIMS ID: 97-18084
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	41,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	186
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,460
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	37.6
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	44.0
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,400
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	15
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,260
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	694
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.08
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	30
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,280
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,070 J
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	11
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	106
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

210
JMB
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4768

WR-SD-SD142-0000

Lab Sample ID: T971BJ
LIMS ID: 97-18085
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 40.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	40,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	177
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5 J
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,240 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	37.9
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.4	18.1
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	47.9 J
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	43,000
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	17 J
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,100
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	632
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	29
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,260
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	14
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.4	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	983
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	10
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.6	2,010
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.4	108
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	113 J

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

211

01082

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4770

WR-SD-SD143-0000

Lab Sample ID: T971BK
LIMS ID: 97-18086
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 51.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	28,900
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.10	148
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.10	0.48
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	5,960 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	32.1
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	14.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	34.1
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	34,500
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	28
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	5,240
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.10	512
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.04
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1.0	23.2
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,190
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	10
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.6
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	693
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	5 U
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,840
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	86.3
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	109

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

212
JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4771

WR-SD- SD144-0000

Lab Sample ID: T971BL
LIMS ID: 97-18087
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 41.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	42,100
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	183
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,500 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	39.3
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	18.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	48.3
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	44,700
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	20
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,250
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	635
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	30
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,330
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.8
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,080
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	12
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.6	2,160
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	110
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	120

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

213
JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4772

WR-SD-SD146-0000

Lab Sample ID: T971BM
LIMS ID: 97-18088
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	41,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	189
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,490 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	37.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.2
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	43.9
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,900
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,250
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	691
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.05
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	30
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,260
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	14
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,060
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	8
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,900
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	100

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4775

WR-SD-SD147-0000

Lab Sample ID: T971BN
LIMS ID: 97-18089
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 44.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	39,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	6 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	191
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.5
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,380 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	36.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.5
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	44.5
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	42,800
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	15
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,270
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	713
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.06
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	31
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,200
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	12
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	990
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	14
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,900
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	105
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	102

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 215
1/9/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4776

WR-SD-SD149-0000

Lab Sample ID: T971BO
LIMS ID: 97-18090
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized
Reported: 11/20/97

Percent Total Solids: 43.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	41,000
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	6	7 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	6	6 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	194
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.7
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.6
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,590 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.6	41.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	19.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	59.0
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	47,200
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	39
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,350
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	699
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.10
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	34
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	60	1,330
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	6	13
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	6	1,070
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	6	15
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	113
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.5	154

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

216 JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4777

WR-SD- SD151-0000

Lab Sample ID: T971BP
LIMS ID: 97-18091
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 45.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	40,200
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	8 J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.1	203
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.1	0.6
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	1.0
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	8,740 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	44.0
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	20.0
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	72.7
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	47,000
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	80
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	7,530
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.1	618
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.27
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1	38
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,320
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	15
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.9
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	1,080
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	11
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	2,120
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	115
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	265

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9739 4778

WR-SD- SD151-1000

Lab Sample ID: T971BQ
LIMS ID: 97-18092
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/20/97

Percent Total Solids: 47.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/20/97	6010	11/05/97	7429-90-5	Aluminum	2	35,300
3050	10/20/97	6010	11/05/97	7440-36-0	Antimony	5	5 U J
3050	10/20/97	6010	11/05/97	7440-38-2	Arsenic	5	5 U
3050	10/20/97	6010	11/05/97	7440-39-3	Barium	0.10	159
3050	10/20/97	6010	11/05/97	7440-41-7	Beryllium	0.10	0.56
3050	10/20/97	6010	11/05/97	7440-43-9	Cadmium	0.2	0.4
3050	10/20/97	6010	11/05/97	7440-70-2	Calcium	2	7,200 J
3050	10/20/97	6010	11/05/97	7440-47-3	Chromium	0.5	32.8
3050	10/20/97	6010	11/05/97	7440-48-4	Cobalt	0.3	15.8
3050	10/20/97	6010	11/05/97	7440-50-8	Copper	0.2	40.8
3050	10/20/97	6010	11/05/97	7439-89-6	Iron	2	37,500
3050	10/20/97	6010	11/05/97	7439-92-1	Lead	2	14
3050	10/20/97	6010	11/05/97	7439-95-4	Magnesium	2	6,210
3050	10/20/97	6010	11/05/97	7439-96-5	Manganese	0.10	552
CLP	10/20/97	7471	10/20/97	7439-97-6	Mercury	0.02	0.26
3050	10/20/97	6010	11/05/97	7440-02-0	Nickel	1.0	25.9
3050	10/20/97	6010	11/05/97	7440-09-7	Potassium	50	1,100
3050	10/20/97	6010	11/05/97	7782-49-2	Selenium	5	11
3050	10/20/97	6010	11/05/97	7440-22-4	Silver	0.3	0.7
3050	10/20/97	6010	11/05/97	7440-23-5	Sodium	5	877
3050	10/20/97	6010	11/05/97	7440-28-0	Thallium	5	10
3050	10/20/97	6010	11/05/97	7440-32-6	Titanium	0.5	1,700
3050	10/20/97	6010	11/05/97	7440-62-2	Vanadium	0.3	91.5
3050	10/20/97	6010	11/05/97	7440-66-6	Zinc	0.4	97.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/9/98

Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: U199
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABG

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 14 samples, SDG U199, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97424913	97424915	97424916	97424918	97424919
97424920	97424921	97424923	97424925	97424927
97424929	97424931	97424933	97424935	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

1. Holding Times

All samples met holding time criteria.

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2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

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Blank ID	Analyte	Concentration (mg/kg)	Associated Samples
Method Blank 11/11/97	Aluminum	2	97424915, 97424916, 97424918, 97424919, 97424920, 97424921, 97424923, 97424925, 97424927, 97424929, 97424931, 97424933, 97424935
	Calcium	3	
	Sodium	7	
Method Blank 11/14/97	Aluminum	2	97424913
	Calcium	3	
	Sodium	6	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
1CCB7	Calcium	37.6	None
2CCB1	Vanadium	-3.4	None

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

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5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the control limits.

7. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results were within the QC limit of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment.

8. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97424913	Antimony	9.9

Positive results for the above analytes were qualified as estimated (J). Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ), and rejected (R) for spike recoveries less than 10 percent. Antimony results may exhibit a low bias.

9. ICP Serial Dilution

The ICP serial dilution percent difference was outside QC limits of 10 percent for the following analytes:

Analyte	Percent Difference
Nickel	10.2

Positive results for the above analytes were qualified as estimated (J).

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10. Post Digest Spike Recovery

The following samples had post digestion spike recoveries outside of the QC limit of 85 to 115 percent:

Sample	Element	Percent Recovery
97424913	Antimony	72.1

Sample results with spike recoveries outside limits have been flagged estimated (J). Detection limits were rejected (R) due to matrix spike recoveries less than 10 percent.

11. Field Duplicate Analysis

Samples 97424915 and 97424916 were field duplicates. Results exhibited reasonable agreement.

12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424913

WR-SD-SD049-0000A

Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized
Reported: 11/19/97

Percent Total Solids: 54.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	11/13/97	6010	11/14/97	7429-90-5	Aluminum	2	36,700
3050	11/13/97	6010	11/14/97	7440-36-0	Antimony	5	5 ~~B~~ R
3050	11/13/97	6010	11/14/97	7440-38-2	Arsenic	5	5 U
3050	11/13/97	6010	11/14/97	7440-39-3	Barium	0.09	175
3050	11/13/97	6010	11/14/97	7440-41-7	Beryllium	0.09	0.61
3050	11/13/97	6010	11/14/97	7440-43-9	Cadmium	0.2	0.4
3050	11/13/97	6010	11/14/97	7440-70-2	Calcium	2	7,900
3050	11/13/97	6010	11/14/97	7440-47-3	Chromium	0.5	36.9
3050	11/13/97	6010	11/14/97	7440-48-4	Cobalt	0.3	18.8
3050	11/13/97	6010	11/14/97	7440-50-8	Copper	0.2	48.4
3050	11/13/97	6010	11/14/97	7439-89-6	Iron	2	40,800
3050	11/13/97	6010	11/14/97	7439-92-1	Lead	2	27
3050	11/13/97	6010	11/14/97	7439-95-4	Magnesium	2	6,730
3050	11/13/97	6010	11/14/97	7439-96-5	Manganese	0.09	704
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.07
3050	11/13/97	6010	11/14/97	7440-02-0	Nickel	0.9	29.7 J
3050	11/13/97	6010	11/14/97	7440-09-7	Potassium	50	1,220
3050	11/13/97	6010	11/14/97	7782-49-2	Selenium	5	10
3050	11/13/97	6010	11/14/97	7440-22-4	Silver	0.3	0.9
3050	11/13/97	6010	11/14/97	7440-23-5	Sodium	5	1,010
3050	11/13/97	6010	11/14/97	7440-28-0	Thallium	5	9
3050	11/13/97	6010	11/14/97	7440-32-6	Titanium	0.5	1,950
3050	11/13/97	6010	11/14/97	7440-62-2	Vanadium	0.3	102
3050	11/13/97	6010	11/14/97	7440-66-6	Zinc	0.4	134

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

051 JMB 1/21/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424915
WR-SD-SD048-0000A

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 57.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	33,800
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	4	4 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.09	164
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.56
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.4
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	7,350
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.4	33.3
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	17.6
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	42.6
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	40,300
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	25
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	6,030
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.09	668
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.07
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	0.9	28.1 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	40	1,130
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	4	8
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.2
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	4	935
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	4	4 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.4	1,940
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	98.2
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.3	146

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB
10/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424916

WR-SD-SD048-1000A

Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 57.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	35,100
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	4	5 J
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.09	167
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.57
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.4
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	7,680
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.4	33.9
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	18.1
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	40.3
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	41,700
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	27
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	6,170
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.09	685
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.06
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	0.9	28.2 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	40	1,130
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	4	7
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	0.9
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	4	1,030
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	4	4 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.4	1,970
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	99.0
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.3	159

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

052 JMB 1/21/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424918

WR-SD-SD055-0000A

Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 58.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	3	35,000
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	8	8 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	8	8 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.2	180
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.2	0.6
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.3	0.6
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	3	8,760
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.8	36.6
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.5	18.8
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.3	64.0
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	3	42,100
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	3	31
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	3	6,610
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.2	607
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.13
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	2	33 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	80	1,140
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	8	8 U
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.5	1.3
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	8	936
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	8	8 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.8	1,790
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.5	100
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.7	178

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/21/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424919

WR-SD-SD053-0000A

Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 58.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	3	34,400
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	8	8 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	8	8 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.2	191
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.2	0.6
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.3	0.6
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	3	12,500
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.8	67.5
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.5	18.8
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.3	151
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	3	45,300
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	3	131
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	3	7,560
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.2	662
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.50
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	2	37 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	80	1,270
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	8	11
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.5	1.2
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	8	1,030
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	8	8 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.8	1,800
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.5	94.6
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.7	213

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMK 1/21/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424920
WR-SD- SD133-0000A

Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	4	40,600
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	10	10 UR
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	10	14
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.2	281
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.2	0.6
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.4	0.7
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	4	16,000
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	1.0	75.1
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.6	20.8
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.4	729
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	4	53,300
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	4	178
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	4	8,510
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.2	817
CLP	11/05/97	7471	11/06/97	7439-97-6	Mercury	0.06	0.80
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	2	43 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	100	1,510
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	10	14
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.6	1.6
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	10	1,100
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	10	10 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	1.0	1,950
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.6	109
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.8	598

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424921
WR-SD- SD127-0000A

Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 48.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	44,200
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	5	5 ~~U~~ R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.1	203
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.1	0.7
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,850
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.5	40.4
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	19.7
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	162
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	45,000
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	24
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	7,460
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.1	872
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.07
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	1	32 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	50	1,430
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	5	9
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.3
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	5	1,050
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,950
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	106
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.4	195

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/21/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424923
WR-SD- SD122-0000A

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 50.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	43,000
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	5	5 ~~J~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	5	6
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.10	191
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.10	0.70
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,530
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.5	40.0
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	19.4
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	95.9
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	44,100
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	28
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	7,580
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.10	816
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.08
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	1.0	31.5 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	50	1,330
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	5	12
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.4
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	5	1,010
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	5	7
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,950
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	106
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.4	160

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

057 JM. 1/21/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424925
WR-SD-SD125-0000A

Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 47.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	43,900
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.1	200
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.1	0.7
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,440
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.5	43.6
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	19.6
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	141
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	45,700
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	38
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	7,400
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.1	836
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.09
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	1	33 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	50	1,410
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	5	13
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.5
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	5	976
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	5	9
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,960
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	107
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.4	196

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

gmB 1/21/9:

058

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424927
WR-SD-SD116-0000A

Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 48.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	44,100
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.1	184
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.1	0.7
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.3
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,920
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.5	38.0
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	19.4
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	47.8
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	43,700
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	13
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	7,670
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.1	846
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.09
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	1	31 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	50	1,410
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	5	9
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	5	1,060
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	5	7
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,940
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	105
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.4	97.8

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424929
WR-SD-SD106-0000A

Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	40,600
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	5	5 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.10	184
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.10	0.66
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.3
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,450
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.5	36.9
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	18.7
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	79.9
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	42,700
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	20
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	7,300
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.10	767
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.07
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	1.0	30.3 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	50	1,280
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	5	12
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.2
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	5	948
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	5	9
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,840
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	100
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.4	131

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

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ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424931
WR-SD-SD102-0000A

Lab Sample ID: U199L
LIMS ID: 97-19627
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 59.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	36,700
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	4	4 ~~U~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.08	168
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.08	0.59
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,920
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.4	33.9
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.2	16.9
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	46.3
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	39,200
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	28
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	6,980
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.08	509
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.32
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	0.8	29.2 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	40	1,130
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	4	11
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.2	1.3
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	4	1,070
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	4	6
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.4	1,920
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.2	102
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.3	131

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

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ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424933
WR-SD-SD096-0000A

Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 61.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	34,500
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	4	4 ~~J~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.08	161
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.08	0.56
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	8,670
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.4	33.9
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.2	16.7
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	45.1
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	39,500
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	25
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	6,370
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.08	551
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.11
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	0.8	29.0 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	40	1,180
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	4	9
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.2	1.1
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	4	1,100
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	4	5
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.4	1,800
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.2	93.9
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.3	122

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

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1/21/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424935
WR-SD-SD057-0000A

Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 58.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/11/97	7429-90-5	Aluminum	2	35,400
3050	10/29/97	6010	11/11/97	7440-36-0	Antimony	4	4 ~~J~~R
3050	10/29/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/11/97	7440-39-3	Barium	0.08	175
3050	10/29/97	6010	11/11/97	7440-41-7	Beryllium	0.08	0.62
3050	10/29/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.3
3050	10/29/97	6010	11/11/97	7440-70-2	Calcium	2	7,890
3050	10/29/97	6010	11/11/97	7440-47-3	Chromium	0.4	33.9
3050	10/29/97	6010	11/11/97	7440-48-4	Cobalt	0.3	16.6
3050	10/29/97	6010	11/11/97	7440-50-8	Copper	0.2	36.8
3050	10/29/97	6010	11/11/97	7439-89-6	Iron	2	38,900
3050	10/29/97	6010	11/11/97	7439-92-1	Lead	2	16
3050	10/29/97	6010	11/11/97	7439-95-4	Magnesium	2	6,700
3050	10/29/97	6010	11/11/97	7439-96-5	Manganese	0.08	524
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.15
3050	10/29/97	6010	11/11/97	7440-02-0	Nickel	0.8	28.1 J
3050	10/29/97	6010	11/11/97	7440-09-7	Potassium	40	1,190
3050	10/29/97	6010	11/11/97	7782-49-2	Selenium	4	11
3050	10/29/97	6010	11/11/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/11/97	7440-23-5	Sodium	4	1,040
3050	10/29/97	6010	11/11/97	7440-28-0	Thallium	4	7
3050	10/29/97	6010	11/11/97	7440-32-6	Titanium	0.4	1,870
3050	10/29/97	6010	11/11/97	7440-62-2	Vanadium	0.3	96.3
3050	10/29/97	6010	11/11/97	7440-66-6	Zinc	0.3	91.3

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

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Seattle, Washington 98104-5057
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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 11 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: U175
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABS

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 9 samples, SDG U175, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97424900	97424902	97424903	97424904	97424906
97424907	97424909	97424910	97424912	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

1. Holding Times

All samples met holding time criteria.

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2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

Blank ID	Analyte	Concentration (mg/kg)	Associated Samples
Method Blank	Aluminum	2	97424900, 97424902,
	Calcium	5	97424903, 97424904,
	Sodium	6	97424906, 97424907,
	Zinc	0.3	97424909, 97424910,
			97424912

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Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

b. Initial Calibration and Continuing Calibration Blanks

The following elements were found in calibration blanks.

Blank ID	Analyte	Concentration (µg/L)	Associated Samples
CCB7	Calcium	37.6	None

No data qualification was required.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the control limits.

7. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results were within the QC limit of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment.

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8. Spiked Sample Analysis

The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97424900	Antimony	16.9
	Sodium	132

Positive results for the above analytes were qualified as estimated (J). Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ).

9. ICP Serial Dilution

The percent differences (percent D) for ICP serial dilution analysis were within the QC limits of 10 percent for all parameters.

10. Post Digest Spike Recovery

The following samples had post digestion spike recoveries outside of the QC limit of 85 to 115 percent:

Sample	Element	Percent Recovery
97424900	Antimony	2084.8
	Sodium	6594.6

Positive results with spike recoveries outside limits have been flagged estimated (J).

11. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

12. Laboratory Contact

No laboratory contact was required.

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Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424900
WR-SD-SD001-0000A

Lab Sample ID: U175A
LIMS ID: 97-19474
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 54.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	40,300
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	5	5 J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.09	192
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.65
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.7
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,860
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.5	37.7
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	18.4
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	48.4
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	42,100
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	27
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	7,150
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.09	587
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.23
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.9	32.6
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	50	1,370
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	5	8
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.3
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	5	1,150 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	5	5 U
3050	10/28/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,970
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	103
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	152

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424902
WR-SD- SD074-0000A

Lab Sample ID: U175C
LIMS ID: 97-19476
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 49.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	43,100
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	5	5 UJ
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.1	195
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.1	0.7
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.5
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,380
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.5	40.0
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	17.0
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	71.6
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	43,300
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	39
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	7,010
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.1	552
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.56
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	1	31
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	50	1,400
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	5	10
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.6
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	5	1,180 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	5	5 U
3050	10/28/97	6010	11/11/97	7440-32-6	Titanium	0.5	2,090
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	111
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	155

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424903

WR-SD-SD136-0000A

Lab Sample ID: U175D
LIMS ID: 97-19477
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized
Reported: 11/17/97

Percent Total Solids: 61.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	29,200
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	4	4 U J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.08	168
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.08	0.46
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.8
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,080
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.4	40.2
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.2	16.4
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	43.4
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	35,400
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	27
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	5,550
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.08	431
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.04
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.8	25.0
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	40	1,060
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	4	9
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.2	0.9
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	4	1,320 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	4	4
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.2	89.9
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.3	116

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424904

WR-SD-SD141-0000A

Lab Sample ID: U175E
LIMS ID: 97-19478
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 50.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	41,400
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	5	5 U J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.10	207
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.10	0.65
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.6
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,870
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.5	42.9
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	18.0
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	68.9
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	44,800
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	42
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	7,150
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.10	747
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.18
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	1.0	31.9
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	50	1,330
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	5	10
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.4
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	5	1,170 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	5	5
3050	10/28/97	6010	11/11/97	7440-32-6	Titanium	0.5	2,110
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	113
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	236

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424906
WR-SD-SD138-0000A

Lab Sample ID: U175G
LIMS ID: 97-19480
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 52.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	4	42,100
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	9	9 UJ
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	9	12
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.2	224
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.2	0.7
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.4	0.5
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	4	14,200
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.9	40.2
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.6	20.6
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.4	164
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	4	49,300
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	4	36
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	4	7,630
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.2	814
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.05
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	2	32
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	90	1,550
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	9	11
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.6	1.5
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	9	1,160 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	9	9 U
3050	10/28/97	6010	11/11/97	7440-32-6	Titanium	0.9	1,930
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.6	103
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.8	334

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424907
WR-SD-SD013-0000A

Lab Sample ID: U175H
LIMS ID: 97-19481
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 55.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	38,300
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	4	4 U J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	4	4 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.09	175
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.59
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.8
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,240
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.4	37.8
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	16.3
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	57.5
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	39,900
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	41
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	6,630
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.09	495
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.27
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.9	30.0
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	40	1,330
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	4	8
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.5
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	4	1,120 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	4	4 U
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	98.7
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.3	255

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424909
WR-SD-SD007-0000A

Lab Sample ID: U175I
LIMS ID: 97-19482
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 55.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	41,300
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	4	4 UJ
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	4	5
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.09	191
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.63
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.7
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,720
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.4	39.3
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	17.4
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	50.5
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	41,400
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	34
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	7,060
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.09	545
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.34
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.9	31.5
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	40	1,400
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	4	11
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.4
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	4	1,230 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	4	5
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	103
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	196

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

01120

JMB 1/27/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424910
WR-SD-SD017-0000A

Lab Sample ID: U175J
LIMS ID: 97-19483
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/16/97

Data Release Authorized:
Reported: 11/17/97

Percent Total Solids: 55.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	37,100
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	5	5 U J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.09	175
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.60
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.4
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	7,490
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.5	35.2
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	17.2
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	40.9
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	40,200
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	27
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	6,510
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.09	529
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.11
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.9	29.4
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	50	1,330
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	5	9
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.2
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	5	1,060 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	5	5 U
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	98.2
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	125

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98 350

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 97424912

WR-SD-SD049-0000A

Lab Sample ID: U175L
LIMS ID: 97-19485
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/16/97

Data Release Authorized by
Reported: 11/17/97

Percent Total Solids: 51.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/28/97	6010	11/11/97	7429-90-5	Aluminum	2	40,800
3050	10/28/97	6010	11/11/97	7440-36-0	Antimony	5	5 U J
3050	10/28/97	6010	11/11/97	7440-38-2	Arsenic	5	5 U
3050	10/28/97	6010	11/11/97	7440-39-3	Barium	0.09	189
3050	10/28/97	6010	11/11/97	7440-41-7	Beryllium	0.09	0.66
3050	10/28/97	6010	11/11/97	7440-43-9	Cadmium	0.2	0.6
3050	10/28/97	6010	11/11/97	7440-70-2	Calcium	2	8,300
3050	10/28/97	6010	11/11/97	7440-47-3	Chromium	0.5	38.2
3050	10/28/97	6010	11/11/97	7440-48-4	Cobalt	0.3	17.3
3050	10/28/97	6010	11/11/97	7440-50-8	Copper	0.2	47.0
3050	10/28/97	6010	11/11/97	7439-89-6	Iron	2	41,100
3050	10/28/97	6010	11/11/97	7439-92-1	Lead	2	26
3050	10/28/97	6010	11/11/97	7439-95-4	Magnesium	2	6,760
3050	10/28/97	6010	11/11/97	7439-96-5	Manganese	0.09	619
CLP	10/28/97	7471	10/29/97	7439-97-6	Mercury	0.02	0.16
3050	10/28/97	6010	11/11/97	7440-02-0	Nickel	0.9	30.0
3050	10/28/97	6010	11/11/97	7440-09-7	Potassium	50	1,330
3050	10/28/97	6010	11/11/97	7782-49-2	Selenium	5	11
3050	10/28/97	6010	11/11/97	7440-22-4	Silver	0.3	1.4
3050	10/28/97	6010	11/11/97	7440-23-5	Sodium	5	1,130 J
3050	10/28/97	6010	11/11/97	7440-28-0	Thallium	5	5 U
3050	10/28/97	6010	11/11/97	7440-32-6	Titanium	0.5	1,960
3050	10/28/97	6010	11/11/97	7440-62-2	Vanadium	0.3	103
3050	10/28/97	6010	11/11/97	7440-66-6	Zinc	0.4	144

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/27/98

01122

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Roy F. Weston, Inc.
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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 11 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Inorganic Data
SDG No: U203
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABO

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 16 samples, SDG U203, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for inorganics by Analytical Resources, Inc., of Seattle, WA. The samples were numbered:

97424937	97424943	97424948	97424954	97424939
97424944	97424949	97424956	97424941	97424945
97424951	97424958	97424942	97424947	97424953
97424960				

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the U.S. EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA OSWER 9240.1-05-01, February 1994).

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1. Holding Times

All samples met holding time criteria.

2. Calibration

a. Initial Calibration

Initial calibration frequencies and QC criteria were met.

b. CRI/CRA Standards

Instrument calibration near the project-required detection limit was verified and met recovery criteria for all analytes.

c. Initial and Continuing Calibration Verification

All inductively coupled plasma (ICP) results met control limits of 90 to 110 percent recovery (percent R) of the true values for both initial and continuing calibration.

Mercury cold vapor AA (CVAA) results met control limits of 80 to 120 percent recovery (percent R) for both initial and continuing calibration.

3. Instrument Detection Limits

All instrument detection limits (IDL) for ICP and mercury analyses are equal to or less than the project-required detection limits.

4. Blanks

a. Laboratory Method Blanks

The following analytes were detected in laboratory method blanks.

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Blank ID	Analyte	Concentration (mg/kg)	Associated Samples
Method Blank	Calcium	4	97424937, 97424939, 97424941, 97424942, 97424943, 97424944, 97424945, 97424947, 97424948, 974724949, 97424951, 97424953, 97424954, 97424956, 97424958, 97424960
	Manganese	0.06	
	Sodium	4	

Results for analytes listed above were qualified as undetected (UJ) if concentrations in associated samples were less than five times the concentration present in the blank. No data qualification was required since sample concentrations exceeded the 5 times blank criterion.

b. Initial Calibration and Continuing Calibration Blanks

No analytes were detected in calibration blanks.

c. Field Blanks

No field blank samples were associated with this sample delivery group.

5. ICP Interference Check

All analytes for the interference check samples were within the control limits of 80 to 120 percent of the true values.

6. Laboratory Control Sample

The recoveries for all analytes for both ICP and AA analysis were within the established control limits for sediment.

7. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results were within the QC limit of 35 percent (or $\pm$ 2 times the detection limit for concentrations < 5 times the detection limit) for sediment.

8. Spiked Sample Analysis

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The matrix spike recoveries for the following analytes were outside QC limits of 75 to 125 percent:

Sample	Analyte	Percent Recovery
97424937	Antimony	12.9
	Sodium	130

Positive results for the above analytes were qualified as estimated (J). Detection limits for nondetected metals with recoveries less than 75 percent were qualified as estimated (UJ). Antimony results and detection limits may exhibit a low bias.

9. ICP Serial Dilution

The percent differences (percent D) for ICP serial dilution analysis were within the QC limits of 10 percent for all parameters.

10. Post Digest Spike Recovery

All samples had post digest spike recoveries within QC limits of 85 to 115 percent

11. Field Duplicate Analysis

Samples 97424942 and 97424943 were field duplicates. Results exhibited reasonable agreement.

12. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

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UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4937

WR-SD-SD092-0000A

Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 53.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	39,100
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	281
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.55
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.8
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	7,440
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	43.3
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	16.2
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	53.6
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	39,200
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	44
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	6,740
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	435
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.28
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	31.4
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,200
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	9
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.5
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	2,180 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.5	1,950
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	107
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	162

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 1/20/9

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4939

WR-SD- SD100-0000A

Lab Sample ID: U203C
LIMS ID: 97-19727
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	34,400
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.10	125
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.10	0.49
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.6
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	4,310
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	35.9
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	16.6
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	41.7
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	36,100
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	20
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	5,670
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.10	344
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.06
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	1.0	27.0
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,420
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	10
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	57,800 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	6
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	93.5
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	110

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1956 JMB 1/20/9

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4941

WR-SD- SD090-0000A

Lab Sample ID: U203E
LIMS ID: 97-19729
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 50.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	37,500
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.10	330
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.10	0.50
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.7
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	13,800
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	42.9
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	16.7
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	57.4
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	39,900
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	43
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,370
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.10	663
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.23
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	1.0	60.7
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,280
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	12
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	4,480 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	12
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	101
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	243

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1957 JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4942

WR-SD-SD084-0000A

Lab Sample ID: U203F
LIMS ID: 97-19730
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	36,500
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	205
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.54
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.7
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	7,560
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	39.9
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	17.8
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	51.2
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	40,000
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	33
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	6,770
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	500
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.17
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	31.4
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,140
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	11
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,910 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	99.8
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	181

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1958 JMB 11/20

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4943

WR-SD-SD084-1000A

Lab Sample ID: U203G
LIMS ID: 97-19731
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	39,100
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	6 J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	211
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.52
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.7
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	7,920
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	41.7
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	18.5
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	51.9
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	42,200
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	36
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,000
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	521
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.17
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	34.3
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,270
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	8
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	2,160 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	104
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	194

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1959 JMB 1/2019

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4944

WR-SD-SD031-0000A

Lab Sample ID: U203H
LIMS ID: 97-19732
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 53.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	40,900
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	8 J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	185
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.54
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	2.7
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	7,930
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	41.4
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	20.3
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	103
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	44,100
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	364
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,010
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	684
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.09
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	37.4
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,410
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	6
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.6
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,230 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	106
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	485

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

JMB 11/20

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4945

WR-SD-SD023-0000A

Lab Sample ID: U203I
LIMS ID: 97-19733
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/17/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 55.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	40,700
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	4	6 J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	191
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.56
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	2.8
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,330
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.4	41.1
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	19.1
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	63.6
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	42,600
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	222
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,100
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	495
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.13
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	31.8
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	40	1,300
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	4	6
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.3
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	4	1,200 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	4	4 U
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	107
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	535

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1961 JMB 11/20/97

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4947

WR-SD- SD072-0000A

Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 60.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	3	35,700
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	8	8 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	8	8 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.2	189
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.2	0.6
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.3	0.6
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	3	7,440
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.8	30.2
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.5	24.6
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.3	36.9
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	3	53,900
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	3	25
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	3	5,870
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.2	863
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.09
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	2	25
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	80	1,070
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	8	14
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.5	1.3
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	8	932 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	8	8 U
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.8	2,850
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.5	136
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.7	145

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1962 JMB 1/2019

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4948

WR-SD-SD081-0000A

Lab Sample ID: U203L
LIMS ID: 97-19736
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 57.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	34,100
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	4	4 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	192
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.47
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.4
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,450
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.4	33.0
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	16.9
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	37.1
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	38,200
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	31
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	6,540
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	441
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.12
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	27.9
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	40	1,200
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	4	6
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	0.7
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	4	1,230 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	4	4 U
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	99.7
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.3	150

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1963 JMB 1/20

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4949

WR-SD-SD117-0000A

Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 58.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	37,900
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	4	4 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	185
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.54
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,750
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.4	35.1
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	17.5
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	42.7
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	39,900
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	22
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,310
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	558
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.17
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	28.4
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	40	1,400
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	4	7
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.0
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	4	1,180 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	4	4 U
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.4	2,020
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	105
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.3	157

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1964 JMB 1/20

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4951

WR-SD-SD120-0000A

Lab Sample ID: U2030
LIMS ID: 97-19739
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	43,700
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.10	203
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.10	0.63
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.6
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,500
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	40.8
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	19.8
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	54.3
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	44,200
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	23
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,390
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.10	788
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.08
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	1.0	31.5
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,390
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	13
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.1
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,080 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	6
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	107
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	142

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1965 JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4953

WR-SD-SD071-0000A

Lab Sample ID: U203Q
LIMS ID: 97-19741
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 49.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	42,400
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.10	200
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.10	0.62
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.6
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,130
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	41.3
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	20.4
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	78.4
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	44,700
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	20
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,160
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.10	771
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.10
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	1.0	36.2
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,350
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	13
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.2
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,050 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	9
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	104
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	142

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1966

JMB 1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4954

WR-SD-SD135-0000A

Lab Sample ID: U203R
LIMS ID: 97-19742
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 54.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	40,900
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	197
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.56
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.7
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,590
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	38.7
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	18.9
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	55.7
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	41,400
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	32
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,220
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	658
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.20
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	30.2
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,310
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	8
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.5
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,110 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	6
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	108
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	181

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1967
JMB
1/20/98

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4956

WR-SD-SD150-0000A

Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 60.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	34,100
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	4	4 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	4	4 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.08	171
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.08	0.49
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.4
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	7,390
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.4	34.0
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.2	17.8
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	42.4
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	38,500
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	22
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	6,390
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.08	548
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.06
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.8	27.7
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	40	1,100
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	4	10
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.2	0.9
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	4	1,000 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	4	5
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.4	1,820
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.2	93.1
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.3	127

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1968 JMB 1/20/9.

ANALYTICAL
RESOURCES
INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 9742 4958

WR-SD-SD143-0000A

Lab Sample ID: U203V
LIMS ID: 97-19746
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 52.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	31,900
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	9
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.09	274
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.09	0.44
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	5.3
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	6,420
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	157
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	17.6
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	124
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	36,500
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	1,080
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	5,750
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.09	483
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.37
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	0.9	30.7
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,210
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	8
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	3.4
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	714 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.5	1,870
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	91.9
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	583

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1969 JME 1/2019

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TOTAL METALS

Sample No: 9742 4960

WR-SD- SD151-0000A

Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized:
Reported: 11/19/97

Percent Total Solids: 51.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	10/29/97	6010	11/12/97	7429-90-5	Aluminum	2	45,900
3050	10/29/97	6010	11/12/97	7440-36-0	Antimony	5	5 U J
3050	10/29/97	6010	11/12/97	7440-38-2	Arsenic	5	5 U
3050	10/29/97	6010	11/12/97	7440-39-3	Barium	0.10	199
3050	10/29/97	6010	11/12/97	7440-41-7	Beryllium	0.10	0.65
3050	10/29/97	6010	11/12/97	7440-43-9	Cadmium	0.2	0.5
3050	10/29/97	6010	11/12/97	7440-70-2	Calcium	2	8,700
3050	10/29/97	6010	11/12/97	7440-47-3	Chromium	0.5	40.7
3050	10/29/97	6010	11/12/97	7440-48-4	Cobalt	0.3	20.1
3050	10/29/97	6010	11/12/97	7440-50-8	Copper	0.2	52.6
3050	10/29/97	6010	11/12/97	7439-89-6	Iron	2	44,600
3050	10/29/97	6010	11/12/97	7439-92-1	Lead	2	25
3050	10/29/97	6010	11/12/97	7439-95-4	Magnesium	2	7,720
3050	10/29/97	6010	11/12/97	7439-96-5	Manganese	0.10	759
CLP	10/29/97	7471	10/31/97	7439-97-6	Mercury	0.01	0.11
3050	10/29/97	6010	11/12/97	7440-02-0	Nickel	1.0	31.6
3050	10/29/97	6010	11/12/97	7440-09-7	Potassium	50	1,470
3050	10/29/97	6010	11/12/97	7782-49-2	Selenium	5	7
3050	10/29/97	6010	11/12/97	7440-22-4	Silver	0.3	1.0
3050	10/29/97	6010	11/12/97	7440-23-5	Sodium	5	1,120 J
3050	10/29/97	6010	11/12/97	7440-28-0	Thallium	5	5 U
3050	10/29/97	6010	11/12/97	7440-32-6	Titanium	0.5	1,990
3050	10/29/97	6010	11/12/97	7440-62-2	Vanadium	0.3	108
3050	10/29/97	6010	11/12/97	7440-66-6	Zinc	0.4	141

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

1970 JMB 1/2019

Organotins

1.8

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 2 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: T873
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAL

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 3 samples, SDG T873, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97384060 97384064 97384070

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1-05, February 1994), modified to include specific requirements of analytical methods.

1. Timeliness

All samples met holding time criteria.

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2. Detection Limits—Acceptable

   Instrument detection limits met project required quantitation limits.

3. GC/MS Instrument Performance Check

   All tuning check compound mass abundances and ratios were within required limits.

4. Initial Calibration

   All target analytes and system monitoring compounds were within required limits for the initial calibration.

5. Continuing Calibrations

   All target analytes were within required limits for the continuing calibrations.

6. Blanks

   a. Laboratory Method Blanks

      Laboratory method blank frequency criteria were met.

      No target analytes were reported in laboratory method blanks.

   b. Field Blanks

      No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

   Surrogate compound percent recovery met quality control criteria for all samples, with the exception of the following:

Sample	Surrogate	Percent Recovery	QC Limit
97384060	Tripropyltin	49.2	60-120%

Sample results were qualified as estimated (J).

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8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines.

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines.

10. Internal Standards Performance

Internal standard areas were within contract requirements of -50 percent to +100 percent of associated calibration internal standard areas. Retention time shifts for internal standards met contract requirements of less than 30 seconds.

11. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

12. Sample Analysis

No unusual problems were noted. Sample results are reported as µg/kg of the organotin chloride.

13. Laboratory Contact

Sample 7384070 should not have been analyzed. The porewater sample from the same location was received by the laboratory past holding time limits. The location was sampled again later for both sediment and porewater. The results from 97384070 will be disregarded.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

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UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS WR-SD-SD011-0000
Page 1 of 1

Sample No: **9738 4064**

Lab Sample ID: T873D
LIMS ID: 97-17225
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.0%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	**81**
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin 63.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD- SD020-0000

Sample No: 9738 4070

Lab Sample ID: T873I
LIMS ID: 97-17230
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 50.3%
pH: 6.9

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**28**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin 61.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD-SD001-0000

Sample No: 9738 4060

Lab Sample ID: T873A
LIMS ID: 97-17222
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 31.9%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U J
Tributyl Tin	**18** J
Dibutyl Tin	5.9 U J
Butyl Tin	5.9 U J

TBT Surrogate Recovery

Tripropyl Tin 49.2%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: T870
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAD

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 6 samples, SDG T870, collected from the Willamette River has been completed. The Sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97384076	97384086	97384088	97384091
97384098	97384101		

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

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97-1046d.dvm
DCN 4000-019-036-AAAD

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1. Timeliness

   All samples met holding time criteria.

2. Detection Limits—Acceptable

   Instrument detection limits met project required quantitation limits.

3. GC/MS Instrument Performance Check

   All tuning check compound mass abundances and ratios were within required limits.

4. Initial Calibration

   All target analytes and system monitoring compounds were within required limits for the initial calibration.

5. Continuing Calibrations

   All target analytes were within required limits for the continuing calibrations.

6. Blanks

   a. Laboratory Method Blanks

      Laboratory method blank frequency criteria were met.

      No target analytes were reported in laboratory method blanks.

   b. Field Blanks

      No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

   Surrogate compound percent recovery met quality control criteria for all samples.

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8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines.

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines, with the exception of the following:

Sample ID	MS/MSD	Analyte	MS %R	QC Limit	Associated Samples
97384091	MS	Butyltin	121	10-120%	97384076, 97384086, 97384088, 97384091, 97384098, 97384101

Positive sample results were qualified as estimated (J). Undetected results were not quantified.

10. Internal Standards

Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas for all samples except:

Internal Standard	Sample	Area	QC Limits
d12-Chrysene	97384091	1725664	377512-1510048

Positive results for butyltin associated with the above internal standards and samples were qualified as estimated (J).

11. Field Duplicate Analysis

Samples 97384086 and 97384088 were the field duplicates. Relative percent differences (RPDs) showed acceptable agreement.

12. Sample Analysis

Sample results are reported as µg/kg of the organotin chloride.

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13. Laboratory Contact

Laboratory contact was not required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

D - Value from sample dilution.

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Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD-SD035-0000

Sample No: 9738 4076

Lab Sample ID: T870D
LIMS ID: 97-17199
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/17/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.6%
pH: 6.9

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**14**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin 51.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

WR-SD- SD021-0000

Sample No: 9738 4086

Lab Sample ID: T870M
LIMS ID: 97-17208
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: JMR
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.4%
pH: 6.5

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**55**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin 58.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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Tributyl Tins by Selected Ion Monitoring GC/MS

WR-SD-SD021-1000

Sample No: **9738 4088**

Lab Sample ID: T870N
LIMS ID: 97-17209
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.7%
pH: 6.7

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**63**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin 57.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD- SD004- 0000

Sample No: 9738 4091

Lab Sample ID: T870Q
LIMS ID: 97-17212
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: MR
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/17/97
Instrument: FINN2
Alumina: YES

Sample Amount: 53.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 23.8%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.6 U
Tributyl Tin	**16**
Dibutyl Tin	5.6 U
Butyl Tin	5.6 U J

TBT Surrogate Recovery

Tripropyl Tin 64.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD-SD012-0000

Sample No: 9738 4098

Lab Sample ID: T870W
LIMS ID: 97-17218
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: MR
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 26.5%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	150
Tributyl Tin	~~56,000 E~~ 47000 D
Dibutyl Tin	800
Butyl Tin	740 J

TBT Surrogate Recovery

Tripropyl Tin 46.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4098
DILUTION

Lab Sample ID: T870W-DL
LIMS ID: 97-17218
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: JMR
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:200
Percent Moisture: 26.5%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	1,200 U
Tributyl Tin	**47,000**
Dibutyl Tin	1,200 U
Butyl Tin	1,200 U

TBT Surrogate Recovery

Tripropyl Tin D

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000119

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

WR-SD- SD034-0000

Sample No: 9738 4101

Lab Sample ID: T870Z
LIMS ID: 97-17221
Matrix: Sediment

QC Report No: T870-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/18/97
Date Received: 09/20/97

Data Release Authorized: JM
Reported: 01/14/98

Date extracted: 10/01/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.0%
pH: 6.9

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**72**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin 55.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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1.8

Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: T971
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABC

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 29 samples, SDG T971, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97384968	97384970	97394716	97394718
97394719	97394720	97394722	97394723
97394724	97394732	97394734	97394736
97394738	97394739	97394750	97394751
97394753	97394756	97394758	97394759
97394760	97394765	97394766	97394768
97394770	97394771	97394772	97394775
97394778			

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review*

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(EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

1. Timeliness

All samples met holding time criteria, with the exception of the following:

Sample ID	Date Collected	Date Extracted	No. of Days	Holding Time Limit
97394718	9/22/97	10/15/97	23	14 days
97394719	9/22/97	10/15/97	23	14 days
97394720	9/22/97	10/15/97	23	14 days
97394722	9/22/97	10/15/97	23	14 days
97394723	9/22/97	10/15/97	23	14 days
97394724	9/22/97	10/15/97	23	14 days
97394732	9/23/97	10/15/97	22	14 days
97394734	9/23/97	10/15/97	22	14 days
97394736	9/23/97	10/15/97	22	14 days
97394738	9/23/97	10/15/97	22	14 days
97394739	9/23/97	10/15/97	22	14 days
97394750	9/23/97	10/15/97	22	14 days
97394753	9/23/97	10/15/97	22	14 days
97394756	9/23/97	10/15/97	22	14 days
97394758	9/24/97	10/15/97	21	14 days
97394759	9/24/97	10/15/97	21	14 days
97394760	9/24/97	10/15/97	21	14 days
97394765	9/24/97	10/15/97	21	14 days
97394766	9/24/97	10/15/97	21	14 days
97394768	9/24/97	10/15/97	21	14 days

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Sample ID	Date Collected	Date Extracted	No. of Days	Holding Time Limit
97394770	9/24/97	10/15/97	21	14 days
97394771	9/24/97	10/15/97	21	14 days
97394772	9/24/97	10/15/97	21	14 days
97394775	9/24/97	10/15/97	21	14 days
97394778	9/24/97	10/15/97	21	14 days

Samples were stored at -18°C upon receipt by the laboratory and thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. Detection Limits—Acceptable

   Instrument detection limits met project required quantitation limits.

3. GC/MS Instrument Performance Check

   All tuning check compound mass abundances and ratios were within required limits.

4. Initial Calibration

   All target analytes and system monitoring compounds were within required limits for the initial calibration.

5. Continuing Calibrations

   All target analytes were within required limits for the continuing calibrations.

6. Blanks

   a. Laboratory Method Blanks

      Laboratory method blank frequency criteria were met.

      No target analytes were reported in laboratory method blanks.

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b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples, with the exception of the following:

Sample	Surrogate	Percent Recovery	QC Limit
97394736DL	Tripropyltin	18	31-100%
	Tripropyltin	22	30-160%

Sample results were qualified as estimated (J).

8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines, with the exception of the following:

LCS	Analyte	Percent Recovery	QC Limit	Associated Samples
T9715B	Dibutyltin	127	30-120%	97394968, 97394970, 97394716, 97394718, 97394719, 97394720, 97394722, 97394723, 97394723DL, 97394724, 97394724DL, 97394732, 97394732DL, 97394734, 97394734DL, 97394736, 97394736DL

Sample results were qualified as estimated (J).

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9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines, with the exception of the following:

Analyte	MS %R	MSD %R	RPD	QC Limit	Associated Samples
Tributyltin	160	195		40-120	97394968, 97394970,
Dibutyltin			68.3	50	97394716, 97394718, 97394719, 97394720, 97394722, 97394723, 97394723DL, 97394724, 97394724DL, 97394732, 97394732DL, 97394734, 97394734DL, 97394736, 97394736DL

Sample results were qualified as estimated (J).

10. Internal Standards Performance

Internal standard areas were within contract requirements of -50 percent to +100 percent of associated calibration internal standard areas for all samples except:

Internal Standard	Sample ID	Area	QC Limits
d12-Chrysene	97384970	3203664	509888-1019776

Positive results for analytes associated with the above internal standards and samples were qualified as estimated (J). Quantitation limits for nondetected compounds associated with internal standards listed above were qualified as estimated (UJ) when internal standard areas were less than 50 percent of calibration values, and rejected (R) when areas were less than 10 percent.

11. Field Duplicate Analysis

Samples 97394750/97394751 and 97394765/97394766 were the field duplicates. Relative percent differences (RPDs) showed acceptable agreement.

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12. Sample Analysis

No unusual problems were noted. Sample results were reported as the organotin chloride.

13. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4968
WR- SD-SD102-0000

Lab Sample ID: T971A
LIMS ID: 97-18025
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

JMB

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.2%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	16 J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

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TBT Surrogate Recovery

Tripropyl Tin	59.6%
Tripentyl Tin	85.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4970
WR-SD-SD101-0000

Lab Sample ID: T971B
LIMS ID: 97-18026
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/21/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**220** J
Dibutyl Tin	5.7 U ~~J~~
Butyl Tin	5.7 U J

JMB

TBT Surrogate Recovery

Tripropyl Tin	79.2%
Tripentyl Tin	108%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

4939

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4716
WR-SD- SD106-0000

Lab Sample ID: T971P
LIMS ID: 97-18040
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.8%
pH: 6.9

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**230** J
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	68.6%
Tripentyl Tin	88.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

4945

0116?

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4718
WR-SD- SD108-0000

Lab Sample ID: T971Q
LIMS ID: 97-18041
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: F1NN6
Alumina: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.6%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**310** J
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

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TBT Surrogate Recovery

Tripropyl Tin	52.8%
Tripentyl Tin	71.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

4951

FORM-1

01168

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4719
WR-SD- SD111- 0000

Lab Sample ID: T971R
LIMS ID: 97-18042
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.7%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	**300** J
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

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TBT Surrogate Recovery

Tripropyl Tin	88.4%
Tripentyl Tin	93.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

4957

FORM-1

01169

JMB
1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4720
WR-SD- SD116-0000

Lab Sample ID: T971S
LIMS ID: 97-18043
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.7%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	360 J
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

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TBT Surrogate Recovery

Tripropyl Tin	80.8%
Tripentyl Tin	109%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

4963
JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4722
WR-SD-SD119-0000

Lab Sample ID: T971T
LIMS ID: 97-18044
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/25/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	230 J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

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TBT Surrogate Recovery

Tripropyl Tin	45.2%
Tripentyl Tin	67.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

4969

FORM-1

01171

JMB 1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4723

WR-SD-SD122-0000

Lab Sample ID: T971U
LIMS ID: 97-18045
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: mw
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/25/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.5%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.7 U ~~J~~
Tributyl Tin	~~680 E~~ 440 DJ
Dibutyl Tin	5.7 U ~~J~~
Butyl Tin	5.7 U

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TBT Surrogate Recovery

Tripropyl Tin	84.4%
Tripentyl Tin	121%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

4975

01172

JMB 1/23/

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **9739 4723**
DILUTION

Lab Sample ID: T971U-DL
LIMS ID: 97-18045
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 52.5%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	110 U
Tributyl Tin	**440** J
Dibutyl Tin	110 U
Butyl Tin	110 U

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TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

4981

01173

JMB 1/23/9

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4724
WR-SD-SD121-0000

Lab Sample ID: T971V
LIMS ID: 97-18046
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.9%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	~~450 E~~ 320 DJ
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

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TBT Surrogate Recovery

Tripropyl Tin	79.6%
Tripentyl Tin	96.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01174

4987

JMB 1/23/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: **9739 4724**
DILUTION

Lab Sample ID: T971V-DL
LIMS ID: 97-18046
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/22/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/27/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:3
Percent Moisture: 43.9%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	18 U
Tributyl Tin	**320**
Dibutyl Tin	18 U
Butyl Tin	18 U

TBT Surrogate Recovery

Tripropyl Tin	55.8%
Tripentyl Tin	63.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

4993

FORM-1

JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4732 WR-SD- SD124-0000

Lab Sample ID: T971AD
LIMS ID: 97-18054
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/25/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.7%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	7.9
Tributyl Tin	~~3,100 B~~ 1800 D J
Dibutyl Tin	15 ~~J~~
Butyl Tin	5.9 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	54.8%
Tripentyl Tin	77.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

4999

FORM-1

01176

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **9739 4732**
DILUTION

Lab Sample ID: T971AD-DL
LIMS ID: 97-18054
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:100
Percent Moisture: 46.7%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	590 U
Tributyl Tin	**1,800** J
Dibutyl Tin	590 U
Butyl Tin	590 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5007

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4734
WR-SD- SD128-0000

Lab Sample ID: T971AF
LIMS ID: 97-18056
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/27/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:3
Percent Moisture: 52.4%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	32
Tributyl Tin	~~4,700 E~~ 5000 DJ
Dibutyl Tin	710 J
Butyl Tin	97

JMB

TBT Surrogate Recovery

Tripropyl Tin	55.8%
Tripentyl Tin	64.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5013

01178

JMB 1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4734
DILUTION

Lab Sample ID: T971AF-DL
LIMS ID: 97-18056
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:100
Percent Moisture: 52.4%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	600 U
Tributyl Tin	**5,000** J
Dibutyl Tin	600 U
Butyl Tin	600 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01173

5923
JMB
1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4736
WR-SD-SD125-0000

Lab Sample ID: T971AG
LIMS ID: 97-18057
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/25/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 50.3%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	~~680 E~~ 540 DJ
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	54.2%
Tripentyl Tin	82.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5029
JMB 1/23/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4736
DILUTION

Lab Sample ID: T971AG-DL
LIMS ID: 97-18057
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 50.3%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	57 U J
Tributyl Tin	**540** J
Dibutyl Tin	57 U
Butyl Tin	57 U

JMB

TBT Surrogate Recovery

Tripropyl Tin	18.0%
Tripentyl Tin	22.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5035
JMB 1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4738
WR-SD- SD127-0000

Lab Sample ID: T971AH
LIMS ID: 97-18058
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/25/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.2%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	~~960 E~~ 710 D
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	53.0%
Tripentyl Tin	82.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

5041

FORM-1

01182

JMB 1/23/9

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: **9739 4738**
DILUTION

Lab Sample ID: T971AH-DL
LIMS ID: 97-18058
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 48.2%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	120 U
Tributyl Tin	**710**
Dibutyl Tin	120 U
Butyl Tin	120 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5047
JMB 1/23

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4739
WR-SD- SD130-0000

Lab Sample ID: T971AI
LIMS ID: 97-18059
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.7%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	~~650 B~~ 420 D
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	88.6%
Tripentyl Tin	131%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5053

01184

JMB
1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4739
DILUTION

Lab Sample ID: T971AI-DL
LIMS ID: 97-18059
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 48.7%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	120 U
Tributyl Tin	**420**
Dibutyl Tin	120 U
Butyl Tin	120 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5059

JMB 1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4750
WR-SD-SD117-0000

Lab Sample ID: T971AS
LIMS ID: 97-18069
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 33.1%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	6.0 U
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin	74.8%
Tripentyl Tin	90.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

5065

FORM-1

01186

JMB 1/23/9

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4751
WR-SD- SD117- 1000

Lab Sample ID: T971AT
LIMS ID: 97-18070
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 32.9%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	5.9 U
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	56.8%
Tripentyl Tin	60.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5070
JMB
1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4753
WR-SD-SD133-0000

Lab Sample ID: T971AV
LIMS ID: 97-18072
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	29
Tributyl Tin	~~2,900 E~~ 3300 D
Dibutyl Tin	110
Butyl Tin	47

TBT Surrogate Recovery

Tripropyl Tin	51.2%
Tripentyl Tin	53.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5075
JMB
1/23

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4753
DILUTION

Lab Sample ID: T971AV-DL
LIMS ID: 97-18072
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:100
Percent Moisture: 47.9%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	570 U
Tributyl Tin	**3,300**
Dibutyl Tin	570 U
Butyl Tin	570 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4756
WR-SD-SD020-0000

Lab Sample ID: T971AY
LIMS ID: 97-18074
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/23/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.3%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**8.2**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	70.2%
Tripentyl Tin	90.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01190

5091
JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4758
WR-SD-SD138-0000

Lab Sample ID: T971AZ
LIMS ID: 97-18075
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.7%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**14**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	47.8%
Tripentyl Tin	51.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01191

5097
JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4759
WR- SD- SD145- 0000

Lab Sample ID: T971BA
LIMS ID: 97-18076
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 36.5%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**19**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	55.4%
Tripentyl Tin	70.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1231

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4760
WR-SD- SD150-0000

Lab Sample ID: T971BB
LIMS ID: 97-18077
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 34.3%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	59.8%
Tripentyl Tin	73.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5109
JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4765
WR-SD-SD137-0000

Lab Sample ID: T971BG
LIMS ID: 97-18082
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: WW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.2%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	5.9 U
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	51.8%
Tripentyl Tin	82.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

5113
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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4766
WR-SD- SD 137-1000

Lab Sample ID: T971BH
LIMS ID: 97-18083
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.3%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	46.4%
Tripentyl Tin	72.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4768
WR-SD- SD142-0000

Lab Sample ID: T971BJ
LIMS ID: 97-18085
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.4%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**17**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	40.2%
Tripentyl Tin	58.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5123
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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4770
WR-SD- SD143-0000

Lab Sample ID: T971BK
LIMS ID: 97-18086
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 39.0%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	41.8%
Tripentyl Tin	44.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5129
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1/23/98

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RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4771
WR-SD- SD144-0000

Lab Sample ID: T971BL
LIMS ID: 97-18087
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized:
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.8%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**9.8**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	74.8%
Tripentyl Tin	90.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5135
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4772
WR-SD-SD146-0000

Lab Sample ID: T971BM
LIMS ID: 97-18088
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.7%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	55.0%
Tripentyl Tin	73.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5141
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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9739 4775
WR-SD-SD147-0000

Lab Sample ID: T971BN
LIMS ID: 97-18089
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.4%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**230**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	62.8%
Tripentyl Tin	74.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5146 JML
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9739 4778
WR-SD- SD151-1000

Lab Sample ID: T971BQ
LIMS ID: 97-18092
Matrix: Sediment

QC Report No: T971-Roy F. Weston
Project: 1001-006

Date Sampled: 09/24/97
Date Received: 09/27/97

Data Release Authorized: MW
Reported: 11/13/97

Date extracted: 10/15/97
Date analyzed: 10/24/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.0%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**7.0**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	53.4%
Tripentyl Tin	72.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

5152
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1.8

Roy F. Weston, Inc.
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Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: U199
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABD

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 14 samples, SDG U199, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97424913	97424915	97424916	97424918	97424919
97424920	97424921	97424923	97424925	97424927
97424929	97424931	97424933	97424935	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

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1. Timeliness

All samples met holding time criteria.

2. GC/MS Instrument Performance Check

All tuning check compound mass abundances and ratios were within required limits.

3. Initial Calibration

All target analytes and system monitoring compounds were within required limits for the initial calibration.

4. Continuing Calibrations

All target analytes were within required limits for the continuing calibration with $\overline{RRF}$ percent differences less than 25 percent except:

Date	Time	Compound	% Diff	Associated Samples
11/11/97	1708	Butyltin	29.4%	None

Positive results for compounds associated with the above calibrations and samples have been qualified as estimated (J).

5. Detection Limits—Acceptable

Instrument detection limits met project required quantitation limits.

6. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target analytes were reported in laboratory method blanks.

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b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples.

8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines.

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines, with the exception of the following:

Analyte	MS %R	QC Limit	Associated Samples
Dibutyltin	25.2	30-120%	97424913, 97424915, 97424916, 97424918, 97424919, 97424920, 97424921, 97424923, 97424925, 97424927, 97424929, 97424931, 97424933, 97424935

Sample results were qualified as estimated (J/UJ).

10. Internal Standards Performance

Internal standard areas were within contract requirements of -50 percent to +100 percent of associated calibration internal standard areas for all samples except:

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Internal Standard	Sample	Area	QC Limits
d12-Chrysene	97424935	1140455	1287400-5149600
d10-Phenanthrene	97424935RE	655264	1063192-4252768
d12-Chrysene		584880	904536-3618144

Positive results for analytes associated with the above internal standards and samples were qualified as estimated (J). Quantitation limits for nondetected compounds associated with internal standards listed above were qualified as estimated (UJ) when internal standard areas were less than 50 percent of calibration values

11. Field Duplicate Analysis

Samples 97424915 and 97424916 were the field duplicates. Relative percent differences (RPDs) showed acceptable agreement.

12. Sample Analysis

No unusual problems were noted. Sample results are reported as the organotin chloride.

13. Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

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J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424913 WR-SD-SD049-0000A

Lab Sample ID: U199A
LIMS ID: 97-19616
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.1%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	**190**
Dibutyl Tin	**7.3** J
Butyl Tin	**16**

TBT Surrogate Recovery

Tripropyl Tin	95.6%
Tripentyl Tin	106%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424915 WR-SD-SD648-0000A

Lab Sample ID: U199B
LIMS ID: 97-19617
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**52**
Dibutyl Tin	5.7 U J
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	84.8%
Tripentyl Tin	96.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

364 JMB 1/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424916 WR-SD-SD048-1000A

Lab Sample ID: U199C
LIMS ID: 97-19618
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: YMW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.6%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**63**
Dibutyl Tin	5.9 U J
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	95.8%
Tripentyl Tin	132%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424918 WR-SD- SD055-0000A

Lab Sample ID: U199D
LIMS ID: 97-19619
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 39.6%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**45**
Dibutyl Tin	5.8 U J
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	81.4%
Tripentyl Tin	101%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424919 WR-SD- SD053- 0000A

Lab Sample ID: U199E
LIMS ID: 97-19620
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.7

Analyte	ug/kg
Tetrabutyl Tin	8.0
Tributyl Tin	~~1,100 B~~ 1000 D
Dibutyl Tin	100 J
Butyl Tin	37

TBT Surrogate Recovery

Tripropyl Tin	82.2%
Tripentyl Tin	128%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **97424919**
DILUTION

Lab Sample ID: U199E-DL
LIMS ID: 97-19620
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 40.0%
pH: 7.7

Analyte	ug/kg
Tetrabutyl Tin	29 U
Tributyl Tin	**1,000**
Dibutyl Tin	**83** J
Butyl Tin	29 U

TBT Surrogate Recovery

Tripropyl Tin	86.0%
Tripentyl Tin	84.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

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FORM-1

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 97424920 WR-SD-SD133-0000A

Lab Sample ID: U199F
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	100
Tributyl Tin	~~7,100 E~~ ~~11000 D~~ 15000 D
Dibutyl Tin	~~1,100 E~~ ~~910 D~~ 1300 DJ
Butyl Tin	~~390 E~~ 260 D

TBT Surrogate Recovery

Tripropyl Tin	91.0%
Tripentyl Tin	114%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

	Sample No:	**97424920 DILUTION**
Lab Sample ID: U199F-DL	QC Report No:	U199-REGL, LLC
LIMS ID: 97-19621	Project:	1001-006
Matrix: Sediment		
	Date Sampled:	10/16/97
	Date Received:	10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted:	10/27/97	Sample Amount:	52.2 g-dry-wt
Date analyzed:	11/07/97	Final Extract Volume:	1.0 mL
Instrument:	FINN4	Dilution Factor:	1:50
Alumina:	YES	Percent Moisture:	47.9%
		pH:	7.6

Analyte	ug/kg
Tetrabutyl Tin	290 U
Tributyl Tin	**11,000**
Dibutyl Tin	**910** J
Butyl Tin	290 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

408

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 97424920
DILUTION-2

Lab Sample ID: U199F-DL2
LIMS ID: 97-19621
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: TMW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 12/01/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 47.9%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	63
Tributyl Tin	15,000
Dibutyl Tin	1,300 J
Butyl Tin	260

TBT Surrogate Recovery

Tripropyl Tin	46.0%
Tripentyl Tin	36.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424921 WR-SD-SD127-0000A

Lab Sample ID: U199G
LIMS ID: 97-19622
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 51.2%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	44
Tributyl Tin	~~5,700 B~~ 7100 D
Dibutyl Tin	220 J
Butyl Tin	140

TBT Surrogate Recovery

Tripropyl Tin	72.6%
Tripentyl Tin	85.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 424
1/23/98

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424921
DILUTION

Lab Sample ID: U199G-DL
LIMS ID: 97-19622
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:50
Percent Moisture: 51.2%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	290 U
Tributyl Tin	**7,100**
Dibutyl Tin	290 U J
Butyl Tin	290 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

433

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424923 WR-SD-SD122-0000A

Lab Sample ID: U199H
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	12
Tributyl Tin	~~2,300 E~~ 2700 D
Dibutyl Tin	57 J
Butyl Tin	63

TBT Surrogate Recovery

Tripropyl Tin	64.0%
Tripentyl Tin	82.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **97424923**
DILUTION

Lab Sample ID: U199H-DL
LIMS ID: 97-19623
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:20
Percent Moisture: 48.0%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	120 U
Tributyl Tin	**2,700**
Dibutyl Tin	120 U J
Butyl Tin	120 U

TBT Surrogate Recovery

Tripropyl Tin	56.0%
Tripentyl Tin	48.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424925 WR-SD-SD125-0000A

Lab Sample ID: U199I
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/06/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 52.1%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	16
Tributyl Tin	~~3,300 E~~ 4100 D
Dibutyl Tin	130 J
Butyl Tin	60

TBT Surrogate Recovery

Tripropyl Tin	50.4%
Tripentyl Tin	76.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

454
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 97424925
DILUTION

Lab Sample ID: U199I-DL
LIMS ID: 97-19624
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:30
Percent Moisture: 52.1%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	180 U
Tributyl Tin	**4,100**
Dibutyl Tin	180 U J
Butyl Tin	180 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 11/23/98

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424927 WR-SD-SD116-0000A

Lab Sample ID: U199J
LIMS ID: 97-19625
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: TMW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.8 g-dry-wt
Final Extract Volume: 1.0 mL
[redacted]
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	28
Tributyl Tin	~~1,700 B~~ 3500D
Dibutyl Tin	230 J
Butyl Tin	240

TBT Surrogate Recovery

Tripropyl Tin	79.4%
Tripentyl Tin	85.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

470

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

	Sample No:	**97424927**
		DILUTION
Lab Sample ID: U199J-DL	QC Report No:	U199-REGL, LLC
LIMS ID: 97-19625	Project:	1001-006
Matrix: Sediment		
	Date Sampled:	10/16/97
	Date Received:	10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted:	10/27/97	Sample Amount:	50.8 g-dry-wt
Date analyzed:	11/07/97	Final Extract Volume:	1.0 mL
Instrument:	FINN4	Dilution Factor:	1:30
Alumina:	YES	Percent Moisture:	49.3%
		pH:	7.5

Analyte	ug/kg
Tetrabutyl Tin	180 U
Tributyl Tin	**3,500**
Dibutyl Tin	180 U J
Butyl Tin	180 U

TBT Surrogate Recovery

Tripropyl Tin	D
Tripentyl Tin	D

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424929 WR-SD-SD106-0000A

Lab Sample ID: U199K
LIMS ID: 97-19626
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: mw
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	8.6
Tributyl Tin	~~930 E~~ 1300D
Dibutyl Tin	52 J
Butyl Tin	49

TBT Surrogate Recovery

Tripropyl Tin	87.4%
Tripentyl Tin	89.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01221

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424929
DILUTION

Lab Sample ID: U199K-DL
LIMS ID: 97-19626
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: TMW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 48.6%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	58 U
Tributyl Tin	**1,300**
Dibutyl Tin	58 U J
Butyl Tin	58 U

TBT Surrogate Recovery

Tripropyl Tin	66.0%
Tripentyl Tin	70.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 97424931 WR-SD-SD102-0000A

Lab Sample ID: U199L
LIMS ID: 97-19627
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 39.8%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	5.9 U
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	83.2%
Tripentyl Tin	88.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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500

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424933 WR-SD-SD096-0000A

Lab Sample ID: U199M
LIMS ID: 97-19628
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 53.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.6%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.6 U
Tributyl Tin	**95**
Dibutyl Tin	5.6 UJ
Butyl Tin	5.6 U

TBT Surrogate Recovery

Tripropyl Tin	76.6%
Tripentyl Tin	80.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

JMB 506
1/23/98

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 97424935 WR-SD-SD057-0000A

Lab Sample ID: U199N
LIMS ID: 97-19629
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/07/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.1%
pH: 7.7

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	6.0 U
Dibutyl Tin	6.0 U J
Butyl Tin	6.0 U J

TBT Surrogate Recovery

Tripropyl Tin	56.6%
Tripentyl Tin	59.2%

Data Qualifiers

- U — Indicates compound was analyzed for, but not detected at the given detection limit.
- J — Indicates an estimated value when that result is less than the calculated detection limit.
- E — Indicates a value above the linear range of the detector. Dilution Required
- B — Found in associated method blank.
- NA — Indicates compound was not analyzed.
- Y — Indicates a raised detection limit due to interference.
- NR — Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424935 **REANALYSIS** WR-SD-SD057-0000A

Lab Sample ID: U199N-DL
LIMS ID: 97-19629
Matrix: Sediment

QC Report No: U199-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/17/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.1%
pH: 7.7

Analyte	ug/kg
Tetrabutyl Tin	6.0 U J
Tributyl Tin	6.0 U J
Dibutyl Tin	6.0 U J
Butyl Tin	6.0 U J

TBT Surrogate Recovery

Tripropyl Tin	69.6%
Tripentyl Tin	86.8%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

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FORM-1

Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: T914
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABY

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 29 samples, SDG T914, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97384106	97384915	97384924	97384929	97384947	97384964
97384108	97384917	97384925	97384930	97384958	97384965
97384109	97384919	97384926	97384941	97384960	97384966
97384901	97384921	97384927	97384943	97384961	97384967
97384913	97384922	97384928	97384944	97384963	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

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1. Timeliness

All samples met holding time criteria, with the exception of the following:

Sample ID	Date Collected	Date Extracted	No. of Days	Holding Time Limit
97384106	9/19/97	10/10/97	21	14 days
97384108	9/19/97	10/10/97	21	14 days
97384109	9/19/97	10/10/97	21	14 days
97384913	9/19/97	10/10/97	21	14 days
97384915	9/19/97	10/10/97	21	14 days
97384917	9/19/97	10/10/97	21	14 days
97384919	9/20/97	10/10/97	20	14 days
97384921	9/20/97	10/10/97	20	14 days
97384922	9/20/97	10/10/97	31	14 days
97384924	9/20/97	10/10/97	20	14 days
97384925	9/20/97	10/10/97	20	14 days
97384926	9/20/97	10/10/97	20	14 days
97384927	9/20/97	10/10/97	20	14 days
97384928	9/20/97	10/10/97	20	14 days
97384929	9/20/97	10/10/97	20	14 days
97384930	9/20/97	10/10/97	20	14 days
97384941	9/20/97	10/10/97	20	14 days
97384943	9/20/97	10/10/97	20	14 days
97384944	9/20/97	10/10/97	20	14 days
97384947	9/21/97	10/10/97	19	14 days
97384958	9/21/97	10/10/97	19	14 days
97384960	9/21/97	10/10/97	19	14 days

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Sample ID	Date Collected	Date Extracted	No. of Days	Holding Time Limit
97384961	9/21/97	10/10/97	19	14 days
97384963	9/21/97	10/10/97	19	14 days
97384964	9/21/97	10/10/97	19	14 days
97384965	9/21/97	10/10/97	19	14 days
97384966	9/21/97	10/10/97	19	14 days
97384967	9/21/97	10/10/97	19	14 days

Samples were stored at -18°C upon receipt by the laboratory and thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. GC/MS Instrument Performance Check

All tuning check compound mass abundances and ratios were within required limits.

3. Initial Calibration

All target analytes and system monitoring compounds were within required limits for the initial calibration.

4. Continuing Calibrations

All target analytes were within required limits for the continuing calibrations.

5. Detection Limits—Acceptable

Instrument detection limits met project required quantitation limits.

6. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target analytes were reported in laboratory method blanks.

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b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples.

8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines, with the exception of the following:

LCS	Analyte	Percent Recovery	QC Limit	Associated Samples
LCS (10/19/97)	Butyltin	128%	10-120%	97384901DL, 97384106, 97384108, 97384109, 97384901, 97384913, 97384915, 97384917, 97384919, 97384921, 97384924, 97384926, 97384927, 97384928, 97384925, 97384929, 97384930, 97384941, 97384943, 97384944
LCS (10/23/97)	Dibutyltin	163%	30-120%	97384961, 97384963, 97384964, 97384965, 97384966, 97384967, 97384947, 97384958, 97384960

Positive sample results were qualified as estimated (J). Undetected results were not qualified since percent recoveries were greater than the upper limit.

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9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines, with the exception of the following:

Sample ID	MS/MSD	Analyte	MSD %R	QC Limit	Associated Samples
97384925	MSD	Tributyltin	35.4	40-120%	97384901DL, 97384106, 97384108, 97384109, 97384901, 97384913, 97384915, 97384917, 97384919, 97384921, 97384924, 97384926, 97384927, 97384928, 97384925, 97384929, 97384930, 97384941, 97384943, 97384944

Sample results and detection limits for tributyltin in the associated samples were qualified as estimated (J/UJ).

10. Internal Standards Performance

Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas. Retention time shifts for internal standards met requirements of less than 30 seconds.

11. Field Duplicate Analysis

Samples 97384913/97384915 and 97384941/97384943 were the field duplicates. Relative percent differences (RPDs) showed acceptable agreement, with the exception of tributyltin for 97384913/97384915 (RPD=47.62%). No action was required since field duplicate results reflect field variability rather than laboratory precision.

12. Sample Analysis

No unusual problems were noted. Sample results are reported as the butyltin chloride species.

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13. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4106
WR-SD-SD049-0000

Lab Sample ID: T914D
LIMS ID: 97-17588
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: MR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.6%
pH: 6.8

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**120** J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	63.0%
Tripentyl Tin	72.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000142

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4108
WR-SD-SD051-0000

Lab Sample ID: T914E
LIMS ID: 97-17589
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.1%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**28** J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	72.6%
Tripentyl Tin	78.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000148

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4109
WR-SD-SD053-0000

Lab Sample ID: T914F
LIMS ID: 97-17590
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JMR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.2%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**210** J
Dibutyl Tin	**17**
Butyl Tin	**6.0** J

TBT Surrogate Recovery

Tripropyl Tin	77.0%
Tripentyl Tin	69.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000154

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4901
WR-SD- SD056-0000

Lab Sample ID: T914G
LIMS ID: 97-17591
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 53.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.3%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	5.6 U
Tributyl Tin	~~430 E~~ 480 DJ
Dibutyl Tin	45
Butyl Tin	24 J

TBT Surrogate Recovery

Tripropyl Tin	69.2%
Tripentyl Tin	68.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000162

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **9738 4901**
DILUTION

Lab Sample ID: T914G-DL
LIMS ID: 97-17591
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JMR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 53.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:10
Percent Moisture: 41.3%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	56 U
Tributyl Tin	**480** J
Dibutyl Tin	56 U
Butyl Tin	56 U

TBT Surrogate Recovery

Tripropyl Tin	32.0%
Tripentyl Tin	46.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4913
WR-SD-SD048-0000

Lab Sample ID: T914N
LIMS ID: 97-17598
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/19/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 38.1%
pH: 6.5

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**26** J
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	79.8%
Tripentyl Tin	92.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4915
WR-SD-SD048-1000

Lab Sample ID: T9140
LIMS ID: 97-17599
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.5%
pH: 6.5

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	16 J
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin	47.8%
Tripentyl Tin	78.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000182

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4917
WR-SD-SD055-0000

Lab Sample ID: T914Q
LIMS ID: 97-17601
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/19/97
Date Received: 09/24/97

Data Release Authorized: JMR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 21.5%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	5.8 UJ
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	37.2%
Tripentyl Tin	89.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4919
WR-SD- SD057-0000

Lab Sample ID: T914R
LIMS ID: 97-17602
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JML
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.1%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	23 J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	44.8%
Tripentyl Tin	78.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/30/

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ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4921
WR-SD-SD059-0000

Lab Sample ID: T914S
LIMS ID: 97-17603
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 52.8 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 44.5%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**12** J
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	57.8%
Tripentyl Tin	80.0%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4922
WR-SD-SD058-0000

Lab Sample ID: T914T
LIMS ID: 97-17604
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: MM
Reported: 01/27/98

Date extracted: 10/21/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 27.9%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	90
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

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TBT Surrogate Recovery

Tripropyl Tin	80.8%
Tripentyl Tin	94.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4924
WR-SD- SD061-0000

Lab Sample ID: T914U
LIMS ID: 97-17605
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 53.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 24.5%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.6 U
Tributyl Tin	**13** J
Dibutyl Tin	5.6 U
Butyl Tin	5.6 U

TBT Surrogate Recovery

Tripropyl Tin	47.0%
Tripentyl Tin	80.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4925
WR-SD-SD060-0000

Lab Sample ID: T914V
LIMS ID: 97-17606
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 33.0%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**350** J
Dibutyl Tin	**59**
Butyl Tin	**52** J

TBT Surrogate Recovery

Tripropyl Tin	65.6%
Tripentyl Tin	73.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4926 WR-SD-SD066-0000

Lab Sample ID: T914W
LIMS ID: 97-17607
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/20/97
Instrument: FINN2
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 38.8%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**7.6 ~~U~~ NJ**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	38.6%
Tripentyl Tin	31.2%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000225

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4927
WR-SD- SD071- 0000

Lab Sample ID: T914X
LIMS ID: 97-17608
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/22/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.1%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	**180** J
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin	75.0%
Tripentyl Tin	98.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4928
WR-SD-SD073-0000

Lab Sample ID: T914Y
LIMS ID: 97-17609
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/22/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.8%
pH: 6.8

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	66 J
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin	97.8%
Tripentyl Tin	113%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000237

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4929
WR-SD-SD076-0000

Lab Sample ID: T914Z
LIMS ID: 97-17610
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: MR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.2%
pH: 7.1

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	86 J
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	66.4%
Tripentyl Tin	76.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

01252

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000243

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4930
WR-SD-SD074-0000

Lab Sample ID: T914AA
LIMS ID: 97-17611
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 50.0%
pH: 6.9

Analyte	ug/kg
Tetrabutyl Tin	6.0 U
Tributyl Tin	**50** J
Dibutyl Tin	6.0 U
Butyl Tin	6.0 U

TBT Surrogate Recovery

Tripropyl Tin	70.4%
Tripentyl Tin	74.6%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000249

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4941
WR-SD-SD070-0000

Lab Sample ID: T914AG
LIMS ID: 97-17619
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JMR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 53.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.6%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.6 U
Tributyl Tin	**16** J
Dibutyl Tin	5.6 U
Butyl Tin	5.6 U

TBT Surrogate Recovery

Tripropyl Tin	67.0%
Tripentyl Tin	72.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000255

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4943
WR-SD-SD070-1000

Lab Sample ID: T914AH
LIMS ID: 97-17620
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 35.6%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**14** J
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	63.2%
Tripentyl Tin	75.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000261

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4944
WR-SD-SD072-0000

Lab Sample ID: T914AI
LIMS ID: 97-17621
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/20/97
Date Received: 09/24/97

Data Release Authorized: MC
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 36.9%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**54** J
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	71.2%
Tripentyl Tin	83.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/30/98
000267

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4947 WR-SD-SD077-0000

Lab Sample ID: T914AK
LIMS ID: 97-17623
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 38.1%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**44**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	67.6%
Tripentyl Tin	93.4%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000273

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4958
WR-SD- SD089-0000

Lab Sample ID: T914AP
LIMS ID: 97-17628
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: MR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.7%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**160**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	86.4%
Tripentyl Tin	92.0%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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000279

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4960
WR-SD- SD091-0000

Lab Sample ID: T914AQ
LIMS ID: 97-17629
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized:
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.6%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**130**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	62.8%
Tripentyl Tin	66.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4961
WR-SD-SD096-0000

Lab Sample ID: T914AR
LIMS ID: 97-17630
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: MR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.0%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**180**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	59.2%
Tripentyl Tin	89.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000291

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4963
WR-SD-SD095-0000

Lab Sample ID: T914AS
LIMS ID: 97-17631
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: JM
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 43.3%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**150**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	60.6%
Tripentyl Tin	86.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

01261

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000297

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4964
WR-SD- SD094-0000

Lab Sample ID: T914AT
LIMS ID: 97-17632
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: MR
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.6%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**280**
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	58.4%
Tripentyl Tin	90.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000303

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4965
WR-SD-SD099-0000

Lab Sample ID: T914AU
LIMS ID: 97-17633
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: JMB
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.7%
pH: 7.0

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**100**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	50.4%
Tripentyl Tin	80.0%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9738 4966
WR-SD-SD098-0000

Lab Sample ID: T914AV
LIMS ID: 97-17634
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: MK
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 51.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 42.8%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**180**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	55.4%
Tripentyl Tin	98.8%

Data Qualifiers

U	Indicates compound was analyzed for, but not detected at the given detection limit.
J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
B	Found in associated method blank.
NA	Indicates compound was not analyzed.
Y	Indicates a raised detection limit due to interference.
NR	Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9738 4967
WR-SD- SD103-0000

Lab Sample ID: T914AW
LIMS ID: 97-17635
Matrix: Sediment

QC Report No: T914-Roy F. Weston
Project: 1001.006

Date Sampled: 09/21/97
Date Received: 09/24/97

Data Release Authorized: ML
Reported: 01/27/98

Date extracted: 10/10/97
Date analyzed: 10/23/97
Instrument: FINN6
Alumina: YES

Sample Amount: 50.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.6%
pH: 7.3

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**180**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	50.0%
Tripentyl Tin	77.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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000321

Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: U175
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABQ

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 5 samples, SDG U175, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97424900	97424902	97424904	97424906	97424912

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

1. Timeliness

All samples met holding time criteria.

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2. Detection Limits—Acceptable

   Instrument detection limits met project required quantitation limits.

3. GC/MS Instrument Performance Check

   All tuning check compound mass abundances and ratios were within required limits.

4. Initial Calibration

   All target analytes and system monitoring compounds were within required limits for the initial calibration.

5. Continuing Calibrations

   All target analytes were within required limits for the continuing calibration with $\overline{RRF}$ percent differences less than 25 percent except:

Date	Time	Compound	% Diff	Associated Samples
11/11/97	17:08	Butyltin	29.4	97424904

   Positive results for compounds associated with the above calibrations and samples have been qualified as estimated (J).

6. Blanks

   a. Laboratory Method Blanks

      Laboratory method blank frequency criteria were met.

      No target analytes were reported in laboratory method blanks.

   b. Field Blanks

      No field blanks were associated with this SDG.

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7. System Monitoring Compounds (Surrogates)

   Surrogate compound percent recovery met quality control criteria for all samples.

8. Laboratory Control Sample (LCS)

   All laboratory control sample percent recoveries met QC guidelines.

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

   All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines.

10. Internal Standards Performance

    Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas. Retention time shifts for internal standards met requirements of less than 30 seconds.

11. Field Duplicate Analysis

    No field duplicate samples were associated with this sample delivery group.

12. Sample Analysis

    No unusual problems were noted. Sample results are reported as the butyltin chloride species.

13. Laboratory Contact

    No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

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Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424900 WR-SD-SD001-0000A

Lab Sample ID: U175A
LIMS ID: 97-19474
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 27.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.5%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	11 U
Tributyl Tin	11 U
Dibutyl Tin	11 U
Butyl Tin	11 U

TBT Surrogate Recovery

Tripropyl Tin	65.6%
Tripentyl Tin	71.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1
01270

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532

ANALYTICAL
RESOURCES
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424902 WR-SD-SD074-0000A

Lab Sample ID: U175C
LIMS ID: 97-19476
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.1%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**67**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	65.8%
Tripentyl Tin	59.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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537

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424904 WR-SD-SD141-0000A

Lab Sample ID: U175E
LIMS ID: 97-19478
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/11/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 50.8%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	~~760 E~~ 720 D
Dibutyl Tin	26
Butyl Tin	16 J

TBT Surrogate Recovery

Tripropyl Tin	67.8%
Tripentyl Tin	73.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/27/98 54:

ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: **97424904**
DILUTION

Lab Sample ID: U175E-DL
LIMS ID: 97-19478
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized: YMW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:5
Percent Moisture: 50.8%
pH: 7.2

Analyte	ug/kg
Tetrabutyl Tin	29 U
Tributyl Tin	**720**
Dibutyl Tin	29 U
Butyl Tin	29 U

TBT Surrogate Recovery

Tripropyl Tin	41.0%
Tripentyl Tin	38.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

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Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424906
WR-SD-SD138-0000A

Lab Sample ID: U175G
LIMS ID: 97-19480
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/14/97
Date Received: 10/16/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 7.9

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	**380**
Dibutyl Tin	5.7 U
Butyl Tin	**8.4**

TBT Surrogate Recovery

Tripropyl Tin	78.8%
Tripentyl Tin	85.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/27/98 55

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 97424912 WR-SD- SD035-0000A

Lab Sample ID: U175L
LIMS ID: 97-19485
Matrix: Sediment

QC Report No: U175-REGL, LLC
Project: 1001-006

Date Sampled: 10/15/97
Date Received: 10/16/97

Data Release Authorized: MW
Reported: 12/10/97

Date extracted: 10/27/97
Date analyzed: 11/10/97
Instrument: FINN4
Alumina: YES

Sample Amount: 15.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.7

Analyte	ug/kg
Tetrabutyl Tin	19 U
Tributyl Tin	19 U
Dibutyl Tin	19 U
Butyl Tin	19 U

TBT Surrogate Recovery

Tripropyl Tin	69.0%
Tripentyl Tin	68.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/27/98 564

1.8

Roy F. Weston, Inc.
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206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 4 February 1998

TO: John Meyer, Site Manager, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
SDG No: U203
Site: Willamette River

WORK ASSIGNMENT NO: 46-35-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABM

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 7 samples, SDG U203, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for organotins by Analytical Resources, Inc. (ARI) of Seattle, Washington. The samples were numbered:

97424937	97424956	97424947	97424958
97424949	97424960	97424953	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

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100906

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1. Timeliness

All samples met holding time criteria, with the exception of the following:

Sample ID	Date Collected	Date Extracted	Holding Time Limit	QC Limit
97424947	10/16/97	12/3/97	48 days	14 days
97424958	10/16/97	12/3/97	48 days	14 days

Samples were stored at -18°C upon receipt by the laboratory and thus, according to PSEP protocols, holding times may be extended to one year. No data were qualified.

2. Detection Limits—Acceptable

Instrument detection limits met project required quantitation limits.

3. GC/MS Instrument Performance Check

All tuning check compound mass abundances and ratios were within required limits.

4. Initial Calibration

All target analytes and system monitoring compounds were within required limits for the initial calibration.

5. Continuing Calibration

All target analytes were within required limits for the continuing calibrations.

6. Blanks

a. Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target analytes were reported in laboratory method blanks.

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b. Field Blanks

No field blanks were associated with this SDG.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples.

8. Laboratory Control Sample (LCS)

All laboratory control sample percent recoveries met QC guidelines.

9. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

All MS/MSD sample percent recoveries and relative percent differences (RPDs) met QC guidelines.

10. Internal Standards Performance

Internal standard areas were within requirements of -50 percent to +100 percent of associated calibration internal standard areas. Retention time shifts for internal standards met requirements of less than 30 seconds.

11. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

12. Sample Analysis

No unusual problems were noted. Sample results are reported as the butyltin chloride species.

13. Laboratory Contact

No laboratory contact was required.

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Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9742 4937
WR-SD-SD092-0000A

Lab Sample ID: U203A
LIMS ID: 97-19725
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: DWR
Reported: 12/11/97

Date extracted: 10/30/97
Date analyzed: 11/21/97
Instrument: FINN4
Alumina: YES

Sample Amount: 21.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 46.6%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	14 U
Tributyl Tin	14 U
Dibutyl Tin	14 U
Butyl Tin	14 U

TBT Surrogate Recovery

Tripropyl Tin	64.4%
Tripentyl Tin	54.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9742 4947 WR-SD-SD072-0000A

Lab Sample ID: U203K
LIMS ID: 97-19735
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: OWB
Reported: 12/11/97

Date extracted: 12/03/97
Date analyzed: 12/04/97
Instrument: FINN6
Alumina: YES

Sample Amount: 53.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 37.7%
pH: 7.4

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	68.0%
Tripentyl Tin	91.8%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

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ANALYTICAL
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9742 4949
WR-SD-SD117-0000 A

Lab Sample ID: U203M
LIMS ID: 97-19737
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ANP
Reported: 12/11/97

Date extracted: 10/30/97
Date analyzed: 11/21/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 41.8%
pH: 7.6

Analyte	ug/kg
Tetrabutyl Tin	5.7 U
Tributyl Tin	5.7 U
Dibutyl Tin	5.7 U
Butyl Tin	5.7 U

TBT Surrogate Recovery

Tripropyl Tin	60.0%
Tripentyl Tin	60.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 11/20/98 050

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9742 4953 WR-SD-SD071-0000A

Lab Sample ID: U203Q
LIMS ID: 97-19741
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: QVP
Reported: 12/11/97

Date extracted: 10/30/97
Date analyzed: 11/21/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 49.0%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.9 U
Tributyl Tin	**360**
Dibutyl Tin	5.9 U
Butyl Tin	5.9 U

TBT Surrogate Recovery

Tripropyl Tin	66.6%
Tripentyl Tin	47.2%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

056

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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9742 4956 WR-SD-SD150-0000A

Lab Sample ID: U203T
LIMS ID: 97-19744
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: [illegible]
Reported: 12/11/97

Date extracted: 10/30/97
Date analyzed: 11/21/97
Instrument: FINN4
Alumina: YES

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 35.1%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**32**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	71.0%
Tripentyl Tin	49.6%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

063

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Tributyl Tins by Selected Ion Monitoring GC/MS

Sample No: 9742 4958
WR-SD- SD143-0000A

Lab Sample ID: U203V
LIMS ID: 97-19746
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: DNB
Reported: 12/11/97

Date extracted: 12/03/97
Date analyzed: 12/04/97
Instrument: FINN6
Alumina: YES

Sample Amount: 1.12 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 45.5%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	270 U
Tributyl Tin	270 U
Dibutyl Tin	270 U
Butyl Tin	270 U

TBT Surrogate Recovery

Tripropyl Tin	54.2%
Tripentyl Tin	69.4%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

070
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ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample No: 9742 4960
WR-SD-SD151-0000A

Lab Sample ID: U203X
LIMS ID: 97-19748
Matrix: Sediment

QC Report No: U203-REGL, LLC
Project: 1001-006

Date Sampled: 10/16/97
Date Received: 10/20/97

Data Release Authorized: ANP
Reported: 12/11/97

Date extracted: 10/30/97
Date analyzed: 11/21/97
Instrument: FINN4
Alumina: YES

Sample Amount: 51.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.6%
pH: 7.5

Analyte	ug/kg
Tetrabutyl Tin	5.8 U
Tributyl Tin	**28**
Dibutyl Tin	5.8 U
Butyl Tin	5.8 U

TBT Surrogate Recovery

Tripropyl Tin	63.0%
Tripentyl Tin	55.0%

Data Qualifiers

U Indicates compound was analyzed for, but not detected at the given detection limit.
J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
B Found in associated method blank.
NA Indicates compound was not analyzed.
Y Indicates a raised detection limit due to interference.
NR Indicates no recovery due to interferences.

FORM-1

JMB 1/20/98

Polychlorinated Dibenzodioxins and Furans

1.8

Roy F. Weston, Inc.
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700 5th Avenue
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MEMORANDUM

DATE: 11 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RNM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Dioxins and Furans
SDG: T971
Site: Willamette River

WORK ASSIGN NO.: 46-42-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABZ

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 3 samples, SDG T971, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for polychlorinated dibenzodioxins and furans (PCDD/PCDF) by Maxim Technology using EPA Method 8290. The samples were numbered:

97424947 97424948 97424937

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications outlined in U.S. EPA Method 8290 (May 1987).

1. Timeliness

No holding time criteria have been established. Samples were extracted 14 days after laboratory receipt and analyzed within 29 days after extraction. Samples were held at 4°C for up to 6 days prior to shipment.

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100917

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98-0015c.dvm
DCN 4000-019-036-AABZ

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2. Mass Resolution (10,000) Check—Acceptable

3. Column Performance Check

   a. Peak Resolution - Acceptable

      Standards met peak valley criteria of less than 25 percent between $^{13}C_{12}$ - 1,2,3,4-TCDD and $^{13}C_{12}$ - 2,3,7,8-TCDD at m/z 334.

   b. Retention Time Windows - Acceptable

   c. Instrument Mass Lock - Acceptable

      Perfluorokerosene mass lock was stable.

4. Initial Calibration

   a. Internal Standard Retention Time - Acceptable

   b. Peak Retention Time Ratios - Acceptable

   c. Isotopic Peak Area Ratios

      Relative ion abundance ratios met method criteria.

   d. Peak Coincidence - Acceptable

      Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

   e. Linearity - Acceptable

      Relative response factors (RRF) met relative standard deviation (RSD) criteria of ±20% for unlabeled standards and ±30% for labeled reference standards.

5. Continuing Calibrations

   a. Internal Standard Retention Time - Acceptable

   b. Peak Retention Time Ratios - Acceptable

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c. Internal Standard Calculated Recovery

Calibration standard recoveries calculated using internal standards met the advisory limits for all compounds.

d. Internal Standard Calculated RRF Percent Difference

Calibration standard RRF percent differences calculated using internal standards. Project requested RPD limits of 25 percent for all compounds except those listed below:

Calibration Run	Compound	% Difference	Associated Samples
11/14/97 9:39	1,2,3,4,7,8-HxCDF	27.1	97424947, 97424948, 97424937
11/14/97 21:02	OCDD	-39.5	None

Results were flagged "J" (estimated quantity) for the compounds and samples associated with the above calibrations only when project limits of 25 percent were exceeded.

e. Isotopic Peak Area Ratios

Relative ion abundance ratios met method criteria for all compounds.

f. Peak Relative Retention Time Ratios - Acceptable

g. Peak Coincidence - Acceptable

Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

6. Instrument Detection Limits - Acceptable

Laboratory reporting limits were less than or equal to project required quantitation limits.

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7. Laboratory Method Blanks - Acceptable

Laboratory method blank frequency criteria were met.

The following compounds were detected in laboratory method blanks.

Blank Run	Compound	Concentration (mg/kg)
Blank - 103097	Total TCDF	1.10
	Total TCDD	1.30
	Total PeCDF	0.30
	2,3,4,6,7,8-HxCDF	0.59
	Total HxCDF	0.59
	OCDD	1.50

Reported levels of the above compounds were flagged "UJ" (undetected, adjusted quantitation limit) in samples if concentrations were less than five times concentrations present in the blank.

8. Surrogates

The surrogate (^{37}Cl - 2,3,7,8-TCDD) recoveries were within the QC guidelines of 40-135 percent.

9. Matrix Spike and Matrix Spike Duplicate Analysis

Sample 97424947 underwent matrix spike and matrix spike duplicate analyses. All matrix spike (MS) and matrix spike duplicate (MSD) percent recoveries (% R) and relative percent differences (% RPD) were within QC guidelines, with the exception of:

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Sample	Compound	MS % R	MSD % R	% RPD	QC Limit
97424947	2,3,7,8-TCDF	465	472		70-130
	1,2,3,7,8-PeCDF	207	184		70-130
	2,3,4,7,8-PeCDF	140	140		70-130
	1,2,3,4,7,8-HxCDF	250	230		40-160
	1,2,3,6,7,8-HxCDF		169		40-160
	1,2,3,4,6,7,8-HpCDF		173		40-160
	1,2,3,4,6,7,8-HpCDD	309	142	74.1	40-160, <35%
	OCDF		161		40-160
	OCDD	712	303	80.6	40-160, <35%

Sample results were qualified as estimated (J) only for 1,2,3,6,7,8-HxCDF because sample concentrations for other analytes were greater than 5 times the matrix spike concentration.

10. Laboratory Control Sample Analysis

The laboratory control sample (LCS) percent recoveries were within QC guidelines of 60-140 percent.

11. Field Duplicate Analysis

No field duplicates were submitted with this sample delivery group.

12. Performance Evaluation Sample Results

No performance evaluation sample was submitted to the laboratory with this sample delivery group.

13. Sample Analysis and Peak Identification Criteria - Acceptable

a. Internal Standard Retention Time - Acceptable

b. Peak Retention Time Ratios - Acceptable

c. Internal Standard Calculated Recovery - Acceptable

Calibration standard recoveries calculated using internal standards met advisory limits for all compounds.

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d. Isotopic Peak Area Ratios - Acceptable

Relative ion abundance ratios met method criteria for all compounds.

e. Peak Relative Retention Time Ratios - Acceptable

f. Peak Coincidence - Acceptable

Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

14. Sample Analysis

No unusual problems were noted.

15. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is an estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the quantitation limit.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

E - Reported concentration exceeded the calibration range.

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MAXIM
TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....97424947 WR-SD-SD~~113~~072-0000A
TCT Sample ID.....65163
Filename.....V71114H
Injected By.....DGP
Total Amount Extracted...0.0183 kg
% Moisture..... 41.3 %
Dry Weight Extracted.....0.0107 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71114B/V71114N
Method Blank ID.....BLANK-103097

Matrix.....SEDIMENT
Dilution....NA
Collected...10/16/97
Received....10/22/97
Extracted...10/30/97
Analyzed....11/14/97 15:27

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	46.0 *	-----
TOTAL TCDF	170.0	-----
2378-TCDD	1.2	-----
TOTAL TCDD	5.5 U	-----
12378-PeCDF	62.0	-----
23478-PeCDF	38.0	-----
TOTAL PeCDF	160.0	-----
12378-PeCDD	ND	1.8 U
TOTAL PeCDD	1.5	-----
123478-HxCDF	91.0 J	-----
123678-HxCDF	ND	65.0 UJ
234678-HxCDF	8.7	-----
123789-HxCDF	16.0	-----
TOTAL HxCDF	160.0	-----
123478-HxCDD	ND	1.9 U
123678-HxCDD	9.2	-----
123789-HxCDD	5.1	-----
TOTAL HxCDD	53.0	-----
1234678-HpCDF	42.0	-----
1234789-HpCDF	17.0	-----
TOTAL HpCDF	72.0	-----
1234678-HpCDD	61.0	-----
TOTAL HpCDD	180.0	-----
OCDF	99.0	-----
OCDD	570.0	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	100
2378-TCDD-13C....	2.00	112
12378-PeCDF-13C..	2.00	134
23478-PeCDF-13C..	2.00	125
12378-PeCDD-13C..	2.00	127
123478-HxCDF-13C.	2.00	99
123678-HxCDF-13C.	2.00	102
234678-HxCDF-13C.	2.00	104
123789-HxCDF-13C.	2.00	73
123478-HxCDD-13C.	2.00	77
123678-HxCDD-13C.	2.00	73
1234678-HpCDF-13C	2.00	60
1234789-HpCDF-13C	2.00	65
1234678-HpCDD-13C	2.00	61
OCDD-13C.....	4.00	81
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	126

Total 2378-TCDD Equivalence: 43 ng/kg
(Using ITE Factors)

JMB 2/10/98

* Value obtained from confirmation analysis (runfile S71119H).

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

Maxim/TCT Report No...3030 97-61356

MAXIM TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....97424948 WR-SD-SD081-0000A
TCT Sample ID.....65164
Filename.....V71114I
Injected By.....DGP
Total Amount Extracted...0.0181 kg
% Moisture..... 43.2 %
Dry Weight Extracted.....0.0103 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71114B/V71114N
Method Blank ID.....BLANK-103097

Matrix.....SEDIMENT
Dilution....NA
Collected...10/16/97
Received....10/22/97
Extracted...10/30/97
Analyzed....11/14/97 16:21

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	84.0 *	-----
TOTAL TCDF	220.0	-----
2378-TCDD	ND	0.76 U
TOTAL TCDD	9.8	-----
12378-PeCDF	49.0	-----
23478-PeCDF	57.0	-----
TOTAL PeCDF	150.0	-----
12378-PeCDD	ND	1.60 U
TOTAL PeCDD	ND	-----
123478-HxCDF	110.0 J	-----
123678-HxCDF	26.0 J	-----
234678-HxCDF	10.0	-----
123789-HxCDF	22.0	-----
TOTAL HxCDF	210.0	-----
123478-HxCDD	ND	1.20 U
123678-HxCDD	ND	3.10 U
123789-HxCDD	ND	1.40 U
TOTAL HxCDD	20.0	-----
1234678-HpCDF	34.0	-----
1234789-HpCDF	20.0	-----
TOTAL HpCDF	71.0	-----
1234678-HpCDD	29.0	-----
TOTAL HpCDD	65.0	-----
OCDF	82.0	-----
OCDD	180.0	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	101
2378-TCDD-13C....	2.00	102
12378-PeCDF-13C..	2.00	74
23478-PeCDF-13C..	2.00	88
12378-PeCDD-13C..	2.00	86
123478-HxCDF-13C.	2.00	104
123678-HxCDF-13C.	2.00	95
234678-HxCDF-13C.	2.00	107
123789-HxCDF-13C.	2.00	83
123478-HxCDD-13C.	2.00	104
123678-HxCDD-13C.	2.00	98
1234678-HpCDF-13C	2.00	80
1234789-HpCDF-13C	2.00	68
1234678-HpCDD-13C	2.00	75
OCDD-13C.....	4.00	78
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	105

Total 2378-TCDD Equivalence: 57 ng/kg
(Using ITE Factors)

JMB 2/10/98

* Value obtained from confirmation analysis (runfile S71119I).

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

Maxim/TCT Report No...3030 97-61356

MAXIM TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....97424937 WR-SD-SD092-0000A
TCT Sample ID.....65165
Filename.....V71114J
Injected By.....SWH
Total Amount Extracted...0.0193 kg
% Moisture..... 46.9 %
Dry Weight Extracted.....0.0103 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71114B/V71114N
Method Blank ID.....BLANK-103097

Matrix.....SEDIMENT
Dilution....NA
Collected...10/16/97
Received....10/22/97
Extracted...10/30/97
Analyzed....11/14/97 17:15

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	15000 *	-----
TOTAL TCDF	32000	-----
2378-TCDD	ND	6.9 U
TOTAL TCDD	ND	-----
12378-PeCDF	ND	18000 U
23478-PeCDF	11000	-----
TOTAL PeCDF	26000	-----
12378-PeCDD	ND	6.9 U
TOTAL PeCDD	18	-----
123478-HxCDF	22000 J	-----
123678-HxCDF	ND	5600.0 UJ
234678-HxCDF	1300	-----
123789-HxCDF	2700	-----
TOTAL HxCDF	31000	-----
123478-HxCDD	ND	11.0 U
123678-HxCDD	22	-----
123789-HxCDD	13	-----
TOTAL HxCDD	130	-----
1234678-HpCDF	5400	-----
1234789-HpCDF	2200	-----
TOTAL HpCDF	9600	-----
1234678-HpCDD	210	-----
TOTAL HpCDD	410	-----
OCDF	4900	-----
OCDD	2100	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	96
2378-TCDD-13C....	2.00	79
12378-PeCDF-13C..	2.00	65
23478-PeCDF-13C..	2.00	60
12378-PeCDD-13C..	2.00	61
123478-HxCDF-13C.	2.00	80
123678-HxCDF-13C.	2.00	73
234678-HxCDF-13C.	2.00	90
123789-HxCDF-13C.	2.00	60
123478-HxCDD-13C.	2.00	68
123678-HxCDD-13C.	2.00	67
1234678-HpCDF-13C	2.00	73
1234789-HpCDF-13C	2.00	66
1234678-HpCDD-13C	2.00	88
OCDD-13C.....	4.00	90
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	87

Total 2378-TCDD Equivalence: 9689 ng/kg
(Using ITE Factors)

JMB 2/10/98

* Value obtained from confirmation analysis (runfile S71119K).
Hexa-Octa values obtained from 1:5 dilution (runfile V71114K).
All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable

Maxim/TCT Report No...3030 97-61356

1.8

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

RECEIVED
FEB 20 1998
Environmental Cleanup Office

DATE: 11 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Dioxins and Furans
SDG: 3017 97-61337 (T914)
Site: Willamette River

WORK ASSIGN NO.: 46-42-0JZZ

DOC. CONTROL NO.: 4000-019-036-AACA

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle

The quality assurance review of 3 samples, SDG 3017 97-61337, collected from the Willamette River has been completed. The sediment samples were analyzed at low level for polychlorinated dibenzodioxins and furans (PCDD/PCDF) by Maxim Technology using EPA Method 8290. The samples were numbered:

97384953 97384955 97384957

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications outlined in U.S. EPA Method 8290 (May 1987).

1. Timeliness

No holding time criteria have been established. Samples were extracted 26 days after laboratory receipt and analyzed within 13 days after extraction. Samples were held at 4°C for up to 3 days prior to shipment.

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2. Mass Resolution (10,000) Check—Acceptable

3. Column Performance Check

   a. Peak Resolution - Acceptable

      Standards met peak valley criteria of less than 25 percent between $^{13}C_{12}$ - 1,2,3,4-TCDD and $^{13}C_{12}$ - 2,3,7,8-TCDD at m/z 334.

   b. Retention Time Windows - Acceptable

   c. Instrument Mass Lock - Acceptable

      Perfluorokerosene mass lock was stable.

4. Initial Calibration

   a. Internal Standard Retention Time - Acceptable

   b. Peak Retention Time Ratios - Acceptable

   c. Isotopic Peak Area Ratios

      Relative ion abundance ratios met method criteria.

   d. Peak Coincidence - Acceptable

      Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

   e. Linearity - Acceptable

      Relative response factors (RRF) met relative standard deviation (RSD) criteria of ±20% for unlabeled standards and ±30% for labeled reference standards.

5. Continuing Calibrations

   a. Internal Standard Retention Time - Acceptable

   b. Peak Retention Time Ratios - Acceptable

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c. Internal Standard Calculated Recovery

Calibration standard recoveries calculated using internal standards met the advisory limits for all compounds.

d. Internal Standard Calculated RRF Percent Difference

Calibration standard RRF percent differences calculated using internal standards. Project requested RPD limits of 25 percent for all compounds except those listed below:

Calibration Run	Compound	% Difference	Associated Samples
11/4/97 8:59	OCDD	29.2	97384953, 97384955, 97384957
11/10/97 10:09	2,3,7,8-TCDF	27.1	None

Results were flagged "J" (estimated quantity) for the compounds and samples associated with the above calibrations only when project limits of 25 percent were exceeded.

e. Isotopic Peak Area Ratios

Relative ion abundance ratios met method criteria for all compounds.

f. Peak Relative Retention Time Ratios - Acceptable

g. Peak Coincidence - Acceptable

Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

6. Instrument Detection Limits - Acceptable

Laboratory reporting limits were less than or equal to project required quantitation limits.

7. Laboratory Method Blanks - Acceptable

Laboratory method blank frequency criteria were met.

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The following compounds were detected in laboratory method blanks.

Blank Run	Compound	Concentration (ng/L)
Blank - 102297	2,3,7,8-TCDF	0.51
	Total TCDF	0.90
	Total TCDD	0.56
	OCDF	0.79
	OCDD	3.20

Reported levels of the above compounds were flagged "UJ" (undetected, adjusted quantitation limit) in samples if concentrations were less than five times concentrations present in the blank.

8. Surrogates

The surrogate (^{37}Cl - 2,3,7,8-TCDD) recoveries were within the QC guidelines of 40-135 percent.

9. Matrix Spike and Matrix Spike Duplicate Analysis

Sample 97384953 underwent matrix spike and matrix spike duplicate analyses. All matrix spike (MS) and matrix spike duplicate (MSD) percent recoveries (% R) and relative percent differences (% RPD) were within QC guidelines, with the exception of:

Sample	Compound	MS % R	QC Limit
97384953	1,2,3,7,8-PeCDF	135	70-130
	1,2,3,4,6,7,8-HpCDF	225	40-160
	1,2,3,4,6,7,8-HpCDD	881	40-160
	OCDF	267	40-160
	OCDD	3914	40-160

Sample results were qualified as estimated (J) only for 1,2,3,7,8-PeCDF since sample concentrations for other analytes were greater than 5 times the matrix spike concentration.

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10. Laboratory Control Sample Analysis

    The laboratory control sample (LCS) percent recoveries were within QC guidelines of 60-140 percent.

11. Field Duplicate Analysis

    No field duplicates were submitted with this sample delivery group.

12. Performance Evaluation Sample Results

    No performance evaluation sample was submitted to the laboratory with this sample delivery group.

13. Sample Analysis and Peak Identification Criteria - Acceptable

    a. Internal Standard Retention Time - Acceptable

    b. Peak Retention Time Ratios - Acceptable

    c. Internal Standard Calculated Recovery - Acceptable

       Calibration standard recoveries calculated using internal standards met advisory limits for all compounds.

    d. Isotopic Peak Area Ratios - Acceptable

       Relative ion abundance ratios met method criteria for all compounds.

    e. Peak Relative Retention Time Ratios - Acceptable

    f. Peak Coincidence - Acceptable

       Peaks for M/M^{+2} or M^{+2}/M^{+4} maximized within two scans of one another.

14. Sample Analysis

    The matrix spike duplicate was not available for analysis due to a defect in the vial used to hold the final extract.

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15. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers which modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected. The associated numerical value is an estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because quality control criteria were not met or concentrations reported were less than the quantitation limit.

R - Quality Control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

E - Reported concentration exceeded the calibration range.

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MAXIM
TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....9738 4953 WR-SD-SD079-0000
TCT Sample ID.....65102
Filename.....V71104F
Injected By.....DGP
Total Amount Extracted...0.0149 kg
% Moisture..... 31.8 %
Dry Weight Extracted.....0.0101 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71104B/V71104M
Method Blank ID.....BLANK-102297

Matrix.....SEDIMENT
Dilution....NA
Collected...09/21/97
Received....09/26/97
Extracted...10/22/97
Analyzed....11/04/97 12:50

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	1.80 * ~~B~~U	-----
TOTAL TCDF	3.70 ~~B~~U	-----
2378-TCDD	0.51	-----
TOTAL TCDD	8.70	-----
12378-PeCDF	1.60 J	-----
23478-PeCDF	1.90	-----
TOTAL PeCDF	34.00	-----
12378-PeCDD	3.20	-----
TOTAL PeCDD	14.00	-----
123478-HxCDF	5.30	-----
123678-HxCDF	5.50	-----
234678-HxCDF	10.00	-----
123789-HxCDF	7.20	-----
TOTAL HxCDF	200.00	-----
123478-HxCDD	3.70	-----
123678-HxCDD	44.00	-----
123789-HxCDD	8.50	-----
TOTAL HxCDD	210.00	-----
1234678-HpCDF	150.00	-----
1234789-HpCDF	14.00	-----
TOTAL HpCDF	600.00	-----
1234678-HpCDD	740.00	-----
TOTAL HpCDD	1500.00	-----
OCDF	420.00	-----
OCDD	7800.00 J	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	81
2378-TCDD-13C....	2.00	75
12378-PeCDF-13C..	2.00	82
23478-PeCDF-13C..	2.00	85
12378-PeCDD-13C..	2.00	85
123478-HxCDF-13C.	2.00	87
123678-HxCDF-13C.	2.00	82
234678-HxCDF-13C.	2.00	83
123789-HxCDF-13C.	2.00	85
123478-HxCDD-13C.	2.00	76
123678-HxCDD-13C.	2.00	68
1234678-HpCDF-13C	2.00	48I
1234789-HpCDF-13C	2.00	67
1234678-HpCDD-13C	2.00	81
OCDD-13C.....	4.00	77
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	72

Total 2378-TCDD Equivalence: 29 ng/kg
(Using ITE Factors)

JMB 2/10/98

* Value obtained from confirmation analysis (runfile S71110D).

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable
I = Interference

Maxim/TCT Report No...3017 97-61337

MAXIM TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....9738 4955 WR-SD-SD086-0000
TCT Sample ID.....65103
Filename.....V71104G
Injected By.....DGP
Total Amount Extracted...0.0233 kg
% Moisture..... 56.4 %
Dry Weight Extracted.....0.0102 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71104B/V71104M
Method Blank ID.....BLANK-102297

Matrix.....SEDIMENT
Dilution....NA
Collected...09/21/97
Received....09/26/97
Extracted...10/22/97
Analyzed....11/04/97 13:42

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	2.5	*~~5~~ U-----
TOTAL TCDF	13.0	-----
2378-TCDD	1.1	-----
TOTAL TCDD	8.4	-----
12378-PeCDF	ND	10 ~~5~~ U
23478-PeCDF	ND	14 U
TOTAL PeCDF	62.0	-----
12378-PeCDD	6.9	-----
TOTAL PeCDD	13.0	-----
123478-HxCDF	15.0	-----
123678-HxCDF	6.9	-----
234678-HxCDF	12.0	-----
123789-HxCDF	5.9	-----
TOTAL HxCDF	170.0	-----
123478-HxCDD	13.0	-----
123678-HxCDD	83.0	-----
123789-HxCDD	28.0	-----
TOTAL HxCDD	420.0	-----
1234678-HpCDF	130.0	-----
1234789-HpCDF	6.9	-----
TOTAL HpCDF	490.0	-----
1234678-HpCDD	970.0	-----
TOTAL HpCDD	1700.0	-----
OCDF	170.0	-----
OCDD	6800.0 J	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	74
2378-TCDD-13C....	2.00	84
12378-PeCDF-13C..	2.00	62
23478-PeCDF-13C..	2.00	65
12378-PeCDD-13C..	2.00	66
123478-HxCDF-13C.	2.00	82
123678-HxCDF-13C.	2.00	78
234678-HxCDF-13C.	2.00	82
123789-HxCDF-13C.	2.00	79
123478-HxCDD-13C.	2.00	78
123678-HxCDD-13C.	2.00	74
1234678-HpCDF-13C	2.00	20I
1234789-HpCDF-13C	2.00	66
1234678-HpCDD-13C	2.00	85
OCDD-13C.....	4.00	67
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	79

Total 2378-TCDD Equivalence: 39 ng/kg
(Using ITE Factors)

JMB 2/10/98

* Value obtained from confirmation analysis (runfile S71105G).

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable
I = Interference

Maxim/TCT Report No...3017 97-61337

Austin Research Engineers • Chen-Northern • Empire Soils Investigations
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MAXIM TECHNOLOGIES INC

METHOD 8290 ANALYSIS RESULTS

Client....ROSA

Client's Sample ID.....9738 4957 WR-SD-SD082-0000
TCT Sample ID.....65104
Filename.....V71104H
Injected By.....DGP
Total Amount Extracted...0.0219 kg
% Moisture..... 54.0 %
Dry Weight Extracted.....0.0101 kg
ICAL Date.....09/29/97
CCAL Filename(s).....V71104B/V71104M
Method Blank ID.....BLANK-102297

Matrix.....SEDIMENT
Dilution....NA
Collected...09/21/97
Received....09/26/97
Extracted...10/22/97
Analyzed....11/04/97 14:49

NATIVE ISOMERS	CONC ng/kg	LOD ng/kg
2378-TCDF	1.50 * ~~J~~ U	-----
TOTAL TCDF	8.20	-----
2378-TCDD	0.84	-----
TOTAL TCDD	0.84 U	-----
12378-PeCDF	ND	1.7 UJ
23478-PeCDF	ND	3.9 U
TOTAL PeCDF	20.00	-----
12378-PeCDD	3.70	-----
TOTAL PeCDD	9.80	-----
123478-HxCDF	ND	9.2 U
123678-HxCDF	2.90	-----
234678-HxCDF	4.50	-----
123789-HxCDF	ND	2.5 U
TOTAL HxCDF	110.00	-----
123478-HxCDD	5.10	-----
123678-HxCDD	29.00	-----
123789-HxCDD	11.00	-----
TOTAL HxCDD	160.00	-----
1234678-HpCDF	44.00	-----
1234789-HpCDF	3.10	-----
TOTAL HpCDF	150.00	-----
1234678-HpCDD	410.00	-----
TOTAL HpCDD	800.00	-----
OCDF	81.00	-----
OCDD	3500.00 J	-----

INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF-13C....	2.00	91
2378-TCDD-13C....	2.00	93
12378-PeCDF-13C..	2.00	82
23478-PeCDF-13C..	2.00	85
12378-PeCDD-13C..	2.00	84
123478-HxCDF-13C.	2.00	105
123678-HxCDF-13C.	2.00	100
234678-HxCDF-13C.	2.00	105
123789-HxCDF-13C.	2.00	103
123478-HxCDD-13C.	2.00	96
123678-HxCDD-13C.	2.00	95
1234678-HpCDF-13C	2.00	53I
1234789-HpCDF-13C	2.00	94
1234678-HpCDD-13C	2.00	112
OCDD-13C.....	4.00	99
1234-TCDD-13C....	2.00	NA
123789-HxCDD-13C.	2.00	NA
2378-TCDD-37Cl4..	0.20	91

Total 2378-TCDD Equivalence: 16 ng/kg
(Using ITE Factors)

JMB
2/10/98

* Value obtained from confirmation analysis (runfile S71105H).

All values are expressed on a dry weight basis.

CONC= Concentration (Totals include 2378-substituted isomers.)
LOD = Limit of Detection
ND = Not Detected
NA = Not Applicable
I = Interference

Maxim/TCT Report No...3017 97-61337

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Grainsize

1.8

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 9 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Grainsize
SDG: T873
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAS

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, RI Manager, WESTON, Seattle (memo only)

The quality assurance review of 10 samples, SDG T873, collected from the Willamette River has been completed. The sediment samples were analyzed for grainsize by Rosa Environmental. The samples were numbered:

97384060	97384062	97384063	97384064	97384066
97384067	97384068	97384069	97384070	97384071

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

1. Detection Limits—Acceptable

   All analyses met project-required quantitation limits of 0.01 percent.

2. Laboratory Replicate Analysis

   The laboratory replicate relative percent difference met the QC limit of 40 percent for all fractions.

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3. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

4. Sample Analysis

Samples 97384062 and 97384063 contained large wood chunks which were removed prior to analysis.

5. Laboratory Contact

Sample 97384070 should not have been analyzed. Some sample containers were received by the laboratory past holding time limits; therefore, the station was resampled. Results from the new sample will be used instead of 97384070.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less then CRDL or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

Table 1. Grain Size Distribution Summary
Percent Finer Than Indicated Size

	Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
	Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
	Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00
SD001	97384060	-	100	99.96	99.07	98.44	95.71	64.86	19.83	9.25	6.94	5.05	3.74	3.62	2.00
SD003	97384062	100	99.80	99.02	98.04	91.36	70.03	53.77	36.31	22.71	12.51	8.91	5.11	3.42	2.35
SD005	97384063	100	99.22	97.13	95.01	92.83	77.37	65.02	51.42	33.13	21.40	13.63	8.71	6.27	3.83
SD011	97384064-1	-	100	99.14	98.16	97.41	95.36	88.23	67.92	48.61	30.52	19.30	12.36	8.98	4.50
	97384064-2	100	99.82	99.66	99.42	98.27	95.55	88.53	68.06	47.36	30.65	19.89	11.90	8.41	5.16
	97384064-3	-	100	99.62	99.28	98.45	95.82	88.85	68.24	50.16	29.36	17.84	11.87	7.81	4.30
SD015	97384066	-	100	99.78	99.04	97.99	92.44	81.00	59.73	38.66	21.42	12.33	8.80	5.77	3.02
SD017	97384067	-	-	100	99.97	99.40	98.51	94.81	79.29	46.22	25.65	13.90	9.28	6.36	3.69
SD018	97384068	100	99.78	99.53	98.99	98.44	97.25	95.18	88.42	64.42	40.54	23.80	13.71	8.75	5.97
SD019	97384069	-	100	99.93	99.88	99.35	97.64	91.16	79.09	55.42	34.84	18.95	11.08	7.89	4.75
	~~97384070~~	~~-~~	~~100~~	~~99.86~~	~~99.64~~	~~98.95~~	~~96.89~~	~~91.87~~	~~78.04~~	~~51.29~~	~~32.54~~	~~19.82~~	~~12.67~~	~~9.64~~	~~6.15~~
SD024	97384071	-	100	99.32	99.27	98.54	96.58	91.55	76.02	46.85	28.02	15.85	10.03	7.68	4.92

Notes to the testing:

1. The tests were run in accordance with ASTM D-422-63, with modifications described in the Puget Sound Estuary Program (PSEP) protocols.

JMB 1/9/98

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MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 9 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Grainsize
SDG: 1001-006-02
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAQ

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, RI Manager, WESTON, Seattle (memo only)

The quality assurance review of 26 samples, SDG 1001-006-02, collected from the Willamette River has been completed. The sediment samples were analyzed for grainsize by Rosa Environmental. The samples were numbered:

97384072	97384073	97384074	97384076	97384078
97384079	97384080	97384081	97384082	97384083
97384084	97384085	97384086	97384088	97384089
97384090	97384091	97384093	97384094	97384095
97384096	97384097	97384098	97384099	97384100
97384101				

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

1. Detection Limits—Acceptable

All analyses met project required quantitation limits of 0.01 percent.

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JRM

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2. Laboratory Replicate Analysis

The laboratory replicate relative percent difference met the QC limit of 40 percent for all fractions.

3. Field Duplicate Analysis

Samples 97384086 and 97384088 were field duplicates. Results exhibited acceptable agreement. Relative percent differences (RPDs) criteria were applied when both sample results exceeded the quantitation limits by a factor of five or more.

4. Sample Analysis

Sample 97384089 contained a large wood chunk which was removed prior to analysis.

5. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less then CRDL or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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JRM

Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

01310

Sample No.	Gravel			% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	%Silt				% Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00
97384072	-	100	99.81	99.75	99.05	98.09	92.44	73.44	46.88	28.39	16.00	10.45	7.04	3.54
97384073	-	100	99.86	99.84	99.45	98.30	92.69	75.04	45.71	26.62	12.96	7.58	5.86	3.66
97384074	-	100	99.82	99.74	99.15	97.96	91.85	73.31	46.80	27.04	15.79	9.10	6.19	3.39
97384076	-	100	98.73	98.69	98.15	97.45	91.07	70.96	45.93	28.01	16.46	11.04	7.51	4.17
97384078	-	100	99.71	99.23	98.06	92.17	87.29	81.21	73.65	53.55	31.23	19.58	12.48	7.55
97384079	100	99.24	98.90	98.55	97.20	88.61	78.34	71.38	60.05	44.06	27.32	16.54	10.27	7.09
97384080	-	100	99.79	99.70	98.74	96.37	92.09	83.61	65.41	34.88	18.45	11.99	7.86	4.83
97384081	-	100	99.35	98.83	96.41	90.07	86.80	81.14	71.15	45.64	27.42	14.79	11.09	6.16
97384082	-	100	99.97	99.89	99.46	95.99	90.54	78.14	56.33	35.19	19.42	12.53	9.24	5.95
97384083	-	-	100	99.98	99.85	99.65	98.98	91.03	71.00	39.75	21.32	13.17	7.81	6.42
97384084	-	-	100	99.87	99.80	99.43	98.70	94.50	80.43	46.50	27.19	13.50	9.26	6.44
97384085	-	100	99.97	99.88	99.42	98.51	92.46	74.74	41.14	23.87	12.32	8.22	5.80	3.76
97384086	-	100	99.85	99.71	99.29	98.86	95.64	82.64	50.40	30.73	17.54	12.78	8.37	5.48
97384088	-	100	99.96	99.85	99.32	98.80	95.00	81.99	44.44	29.27	15.80	10.65	7.24	5.19
97384089	-	100	99.59	99.27	97.12	88.12	82.47	73.20	56.84	38.04	23.64	15.90	11.53	7.94
97384090	100	99.68	99.30	98.50	85.98	18.66	6.15	4.32	3.71	2.75	1.85	1.15	0.75	0.40
97384091	-	100	99.85	98.73	87.64	32.03	23.76	17.56	10.77	6.60	4.31	2.29	1.34	0.76
97384093	-	-	100	99.78	99.21	98.41	93.19	78.81	58.54	33.84	19.42	11.50	7.25	4.56
97384094	-	-	-	100	99.54	98.49	93.10	72.18	40.30	25.13	15.70	9.65	6.19	4.06
97384095-1	-	100	99.95	99.72	99.00	91.73	79.75	59.50	43.79	28.45	22.99	19.32	5.02	0.00
97384095-2	100	99.80	99.71	99.56	98.80	92.07	79.42	59.68	41.08	27.08	16.96	11.36	7.25	4.23
97384095-3	-	100	99.92	99.79	99.38	92.05	79.18	58.47	39.66	26.73	15.89	10.09	6.02	3.90
97384095-R	-	100	99.88	99.81	99.04	91.81	79.00	59.47	38.28	24.51	15.05	9.58	6.00	2.98
97384096	-	-	100	99.77	99.42	96.59	88.77	66.51	39.50	25.44	16.42	9.97	6.20	3.85
97384097	-	100	99.96	99.91	98.97	89.42	82.80	69.48	45.61	28.25	15.76	10.38	7.22	4.45
97384098	-	100	99.50	99.18	88.39	38.57	30.32	26.74	19.50	12.63	7.23	4.74	2.88	1.66
97384099	-	100	99.89	99.71	99.44	98.78	93.61	72.43	49.03	27.99	16.01	9.71	6.21	4.01
97384100	-	100	99.94	99.85	99.52	98.99	90.52	69.01	45.11	25.43	16.59	10.56	7.29	5.26
97384101	-	100	99.95	99.82	99.31	98.11	90.15	69.24	42.04	27.73	15.91	9.46	6.09	4.46

Notes to the testing:
1. Sample 97384088 was 26.5143 g, the procedure requires between 5 and 25 grams. The sample size may effect the accuracy of the analysis.
2. Sample 97384090 was 4.5768 g, due to the sandy nature of the sample, this was all that was available. The sample size may effect the accuracy of the analysis.

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1001-006

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MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RNM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Grainsize
SDG: 1001-006 (T914)
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABW

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, RI Manager, WESTON, Seattle (memo only)

The quality assurance review of 55 samples, SDG 1001-006, collected from the Willamette River has been completed. The sediment samples were analyzed for grainsize by Rosa Environmental. The samples were numbered:

97384103	97384104	97384105	97384106	97384108
97384109	97384901	97384903	97384904	97384905
97384906	97384907	97384908	97384909	97384910
97384911	97384912	97384913	97384915	97384916
97384917	97384919	97384921	97384922	97384924
97384925	97384926	97384927	97384928	97384929
97384930	97384933	97384934	97384935	97384937
97384938	97384939	97384940	97384941	97384943
97384944	97384945	97384947	97384950	97384952
97384954	97384956	97384958	97384960	97384961
97384963	97384964	97384965	97384966	97384967

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DCN 4000-019-036-AABW

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Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

1. Detection Limits—Acceptable

   Analyses met project required quantitation limits.

2. Laboratory Triplicate Analysis

   The laboratory triplicate percent relative standard deviation was below the QC limit of 40% for all analytes.

3. Field Duplicate Analysis

   Samples 97384913/97384915 and 97384941/97384943 were field duplicates. Results exhibited acceptable agreement. Relative percent differences (RPDs) criteria were applied when both sample results exceeded the quantitation limits by a factor of five or more.

4. Sample Analysis

   Sample 97384947 contained a small alder cone and small wood chunks which were analyzed since they passed through the 1/2" sieve (-4 phi).

5. Laboratory Contact

   No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

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UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitaiton limit or lowest calibration standard.

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Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

Sample No.	Gravel			% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	%Silt				% Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97384103	-	-	100	99.90	99.71	98.94	91.70	74.76	45.91	30.96	18.01	10.32	6.26	4.44	SD036
97384104	-	100	99.90	99.86	99.69	98.80	89.08	69.45	47.25	27.74	16.96	10.21	6.26	3.82	SD040
97384105	-	100	99.77	99.61	99.08	97.57	91.02	74.27	24.85	11.42	4.29	2.23	0.67	0.00	SD042
97384106	-	100	99.95	99.90	99.10	97.82	89.59	69.70	44.98	25.40	15.02	9.83	6.28	4.43	SD049

01314

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1001-006

Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

01315

Sample No.	Gravel			% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Silt				% Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97384109	-	100	99.89	99.72	98.85	94.99	71.61	41.41	27.50	16.51	10.56	6.16	4.26	2.22	SD053
97384901	100	99.95	99.22	98.04	95.90	88.25	63.25	32.01	18.40	11.53	7.43	5.28	3.44	2.09	SD056
97384903	-	100	99.97	99.77	99.22	98.11	91.58	72.05	46.25	32.39	19.91	12.27	8.22	4.16	SD037
97384904-1	-	100	99.73	98.85	96.80	93.52	89.03	77.24	63.46	39.51	23.79	14.67	9.48	4.63	SD038
97384904-2	-	100	99.64	98.25	95.79	92.92	88.40	76.63	61.94	39.26	24.40	14.13	10.18	5.68	
97384904-3	100	94.22	91.38	89.53	87.51	84.36	79.87	68.60	56.41	36.28	21.70	13.73	8.77	3.63	
97384906	-	100	99.69	98.36	98.36	96.27	88.31	72.40	46.24	29.54	18.93	13.31	9.71	6.27	SD041
97384908	-	100	99.90	99.76	99.00	97.77	91.17	69.99	43.62	23.79	14.78	8.62	5.32	2.64	SD044
97384909	-	100	99.58	99.13	97.82	94.39	84.18	56.88	37.02	20.14	14.01	7.99	5.22	2.64	SD045
97384910	-	100	98.23	96.93	86.67	63.01	57.77	45.41	34.21	21.48	13.57	8.18	6.11	2.75	SD047
97384911	-	100	99.98	99.90	99.53	98.13	87.80	61.94	42.64	24.09	15.03	9.02	5.75	3.50	SD046
97384912	100	99.99	99.97	99.85	98.74	95.80	80.00	47.74	32.83	20.67	13.35	8.13	5.47	2.31	SD050
97384913	-	100	99.97	99.28	94.51	77.17	65.90	46.19	28.23	17.85	10.88	7.80	5.15	3.21	SD048-0
97384915	-	100	99.52	98.93	93.53	79.40	68.26	48.61	30.52	17.71	11.35	8.50	5.68	3.21	SD048-1
97384916	-	100	99.67	99.17	96.88	91.10	78.58	58.68	42.15	24.72	16.72	11.23	6.93	3.60	SD052
97384919	-	100	99.97	99.87	99.36	98.22	89.70	64.97	39.76	25.56	14.35	7.82	4.70	2.80	SD057
97384921	-	100	99.99	99.95	99.43	98.02	90.74	72.09	48.05	27.18	15.61	9.67	5.77	3.44	SD059
97384922	-	100	99.43	98.89	97.19	56.28	25.83	14.74	11.63	8.28	6.00	3.66	2.22	1.04	SD058

Notes to the testing:

1. Sample 97384901 had the dispersing agent added twice. This was accounted for in the calculations.
2. Sample 97384906 was not within the 5-25 g range for the pipette portion of the analysis, at 26.9781. This may effect the accuracy of the analysis.
3. There were no other anomalies to the samples or testing.

05793

1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-0027-001-2019-36

Sample No.	Gravel			% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	%Silt				% Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97384907	-	100.00	100.02	99.91	99.40	98.13	92.12	71.14	44.83	26.57	16.76	9.39	6.97	3.95	SD043
97384917	100.00	96.42	85.82	74.14	45.26	23.61	18.70	12.77	8.11	5.62	3.88	2.39	1.79	0.97	SD055
97384925	100.00	99.82	98.95	97.89	94.83	81.05	74.01	58.00	32.46	15.98	10.30	6.69	4.81	3.09	SD060
97384926	-	100.00	99.44	98.84	96.12	82.88	73.96	63.33	53.46	34.71	20.70	13.77	9.84	6.86	SD066
97384933	100.00	99.42	99.05	98.45	97.57	95.88	91.96	83.54	62.56	36.65	18.72	12.30	8.40	5.08	SD062
97384934	-	100.00	99.90	99.66	98.85	97.15	90.18	74.32	56.94	36.72	21.44	13.82	10.38	6.22	SD063
97384935	100.00	99.24	98.67	97.78	96.23	93.16	85.51	71.74	53.66	30.40	18.01	11.60	8.19	5.41	SD064

Notes to the Testing:

1. There were no anomalies to the samples or the testing.

01316

05795

1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-0027-001-2019-36

Sample No.	Gravel				Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	1/2"	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31	15.6	7.8	3.9	2	1	
97384108	-	100.00	99.84	99.60	98.97	97.00	88.29	76.41	56.50	30.20	20.74	13.92	9.98	7.16	4.16	SD051
97384905	-	-	-	100.00	99.78	99.08	97.90	92.36	76.67	42.16	25.28	15.20	10.42	7.24	4.66	SD039
97384930	-	-	100.00	99.98	99.83	99.13	98.64	96.80	88.15	54.32	35.89	22.19	15.17	10.69	5.94	SD074
97384924	-	-	100.00	97.30	97.26	96.82	96.03	92.89	82.14	47.77	27.24	14.61	9.62	6.18	3.52	SD061
97384927	-	100.00	100.00	99.00	99.89	99.50	97.85	87.85	62.19	37.06	23.53	14.43	9.17	5.91	3.49	SD071
97384928	-	100.00	100.00	99.93	99.79	99.42	98.70	95.58	83.66	57.39	34.13	17.74	11.23	7.05	4.80	SD073
97384929-1	-	-	100.00	99.34	98.60	98.03	96.47	91.03	75.55	50.49	31.54	18.52	12.72	7.43	4.80	SD076
97384929-2	-	100.00	99.87	99.75	99.57	98.72	96.71	91.50	76.35	51.56	30.20	18.24	12.27	8.92	4.88	
97384929-3	-	-	100.00	99.93	99.84	99.41	98.64	96.06	85.01	55.47	32.69	19.54	13.32	9.11	5.53	
97384937	-	-	100.00	99.79	99.65	99.02	97.25	89.19	70.30	44.23	26.09	16.46	10.76	7.71	4.24	SD065
97384938	-	-	100.00	99.11	98.42	96.82	93.81	88.73	77.90	50.64	32.66	17.75	12.66	9.14	5.90	SD067
97384939	-	-	100.00	99.91	99.48	98.15	93.04	86.37	74.12	47.47	37.79	17.76	11.73	8.89	5.47	SD068
97384940	-	-	100.00	99.75	99.53	98.92	96.89	90.49	72.89	41.00	21.42	12.42	8.13	6.18	3.92	SD069
97384941	-	-	100.00	99.88	99.71	98.96	91.24	72.72	51.71	32.90	20.24	12.17	9.15	6.29	3.85	SD070-0
97384943	-	-	100.00	99.86	99.68	98.85	91.33	73.53	51.84	31.51	18.55	11.74	7.96	6.36	3.78	SD070-1
97384944	-	-	100.00	99.73	99.60	98.70	89.33	66.91	45.69	25.01	13.83	9.37	6.55	3.75	2.49	SD072
97384945	-	-	-	100.00	99.86	98.91	93.40	75.61	53.98	29.70	16.65	10.75	7.37	4.73	3.06	SD075
97384956	-	-	100.00	99.93	99.91	99.46	98.75	95.80	81.13	51.88	32.38	19.95	12.64	9.19	5.72	SD082
~~97384760~~	~~-~~	~~-~~	~~100.00~~	~~99.62~~	~~99.45~~	~~98.98~~	~~96.91~~	~~86.07~~	~~51.55~~	~~28.40~~	~~16.78~~	~~10.34~~	~~7.70~~	~~4.98~~	~~3.16~~	~~SD091~~
97384963	-	-	-	-	100.00	99.92	99.18	92.01	73.02	48.29	28.55	17.60	11.89	8.18	5.74	SD095
97384967	-	-	-	100.00	99.88	99.75	98.92	95.84	86.29	58.31	32.80	16.90	9.97	6.63	4.41	SD103

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1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97384947	98.19	97.29	93.53	89.80	82.82	68.74	45.42	24.80	12.99	7.01	4.91	3.09	1.89	1.00	SD077
97384950	100.00	99.93	98.72	97.71	94.48	80.77	55.02	42.51	14.05	7.80	5.07	3.38	2.07	1.36	SD078
97384952	100.00	99.31	97.57	92.76	70.06	22.67	14.74	9.19	4.42	2.96	1.98	1.44	0.93	0.40	SD079
97384954	-	100.00	99.92	99.82	99.26	98.61	96.47	84.78	54.30	34.25	19.58	12.77	7.93	4.96	SD086
97384958	-	-	100.00	99.98	99.54	98.55	90.14	64.30	38.46	23.23	14.60	10.71	7.08	3.87	SD089
97384960	-	100.00	99.96	99.91	99.59	98.95	93.09	71.41	43.18	25.12	14.79	9.73	6.27	3.86	SD091
97384961	100.00	99.84	98.11	97.07	95.42	91.85	82.15	56.88	28.49	18.81	11.91	8.09	5.34	3.18	SD096
97384964-1	-	100.00	99.94	99.90	99.47	98.56	86.33	66.39	41.50	23.73	14.32	9.49	6.21	3.61	SD094
97384964-2	-	100.00	99.97	99.88	99.57	98.81	85.85	66.65	43.89	24.86	13.83	8.76	5.67	3.63	
97384964-3	-	100.00	99.97	99.92	99.55	98.68	86.43	66.42	42.99	24.38	14.30	8.62	5.95	3.85	
97384965	-	100.00	99.85	99.78	98.99	97.38	93.39	80.94	58.02	31.70	18.81	11.68	8.00	4.93	SD099
97384966	-	100.00	99.98	99.93	99.43	98.77	92.34	76.69	50.96	28.61	16.39	9.66	6.23	4.20	SD098

Notes to the Testing:

1. Sample 97384947 had 100% passing the 1/2" sieve (-4 phi). This included a small alder cone. This sample had considerable amounts of small wood chunks.
2. There were no other anomalies to the testing or the samples.

01318

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1001-006

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Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Grainsize
SDG: T971
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABU

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, RI Manager, WESTON, Seattle (memo only)

The quality assurance review of 68 samples, SDG T971, collected from the Willamette River has been completed. The sediment samples were analyzed for grainsize by Rosa Environmental. The samples were numbered:

97384968	97394715	97394731	97394748	97394764
97384970	97394716	97394732	97394749	97394765
97394700	97394718	97394733	97394750	97394766
97394702	97394719	97394734	97394751	97394767
97394704	97394720	97394736	97394752	97394768
97394705	97394722	97394738	97394753	97394770
97394706	97394723	97394739	97394755	97394771
97394707	97394724	97394741	97394756	97394772
97394708	97394725	97394742	97394758	97394775
97394710	97394726	97394743	97394759	97394776
97394711	97394727	97394744	97394760	97394777
97394712	97394728	97394745	97394761	97394778
97394713	97394729	97394746	97394762	
97394714	97394730	97394747	97394763	

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Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

1. Detection Limits—Acceptable

   Analyses met project required quantitation limits.

2. Laboratory Triplicate Analysis

   The laboratory triplicate relative percent difference was below the QC limit of 40% for all analytes.

3. Field Duplicate Analysis

   Samples 97394765/66, 97394777/78, 97394729/30, 97394750/51, and 97394712/13 were field duplicates. Results exhibited acceptable agreement. Relative percent differences (RPDs) criteria were applied when both sample results exceeded the quantitation limits by a factor of five or more.

4. Sample Analysis

   No unusual problems were noted.

5. Laboratory Contact

   No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

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J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-0027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97394756	-	100.00	99.96	99.91	99.69	99.12	93.94	78.06	49.25	26.64	13.61	8.52	5.69	3.69	SD020
97394763	-	100.00	99.90	99.75	99.23	98.12	90.92	65.98	40.94	21.25	12.56	7.46	5.95	2.62	SD131
97394764	-	100.00	99.91	99.84	99.31	98.52	94.84	76.63	40.26	23.28	13.60	7.95	5.54	3.02	SD135
97394766	-	100.00	99.84	99.60	98.77	97.45	93.54	79.69	54.68	27.33	15.89	9.74	6.84	4.25	SD137-100
97394767	-	100.00	99.91	99.70	99.08	98.16	96.04	88.08	59.27	33.88	19.68	11.27	8.78	5.88	SD140
97394768	-	100.00	99.86	99.71	98.76	97.72	96.03	90.96	62.72	30.76	15.77	8.39	6.22	3.26	SD142
97394770	100.00	99.80	99.59	99.25	98.63	97.50	94.66	80.65	37.17	21.23	12.96	8.64	7.20	3.19	SD143
97394771	-	100.00	99.80	99.38	98.48	97.20	94.54	87.22	55.73	31.02	17.11	10.14	7.77	3.44	SD144
97394772	-	100.00	99.87	99.37	98.75	97.94	94.27	81.74	58.86	27.36	15.69	8.92	6.54	3.52	SD146
97394775-1	-	-	100.00	99.89	99.54	98.80	95.70	85.87	47.87	26.30	14.51	8.62	5.97	3.37	SD147
97394775-2	-	100.00	99.94	99.88	99.27	98.61	96.20	85.68	52.29	28.46	17.50	9.71	7.03	4.22	
97394775-3	-	100.00	99.90	99.77	99.34	98.68	96.20	86.09	55.79	29.65	17.69	11.00	8.00	4.07	
97394776	-	100.00	99.78	99.55	98.30	97.12	94.80	85.80	62.88	30.07	16.07	9.25	6.37	3.23	SD149
97394777	-	100.00	99.62	99.12	97.48	94.80	88.00	69.08	46.93	22.35	13.02	7.16	5.30	2.79	SD151
97394778	-	100.00	99.67	99.29	98.40	97.01	92.32	76.50	45.38	22.64	12.80	6.90	4.52	2.48	SD151-100

Notes to the Testing:

1. Apparent grain size distributions, according to PSEP protocols.

WR-SD - _____ - _000

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1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97394729	-	-	100.00	99.84	99.21	98.05	96.02	91.96	72.54	46.82	25.19	15.86	11.09	6.60	SD141
97394730	-	100.00	99.90	99.76	99.19	97.86	95.60	91.46	79.31	56.67	32.92	21.97	15.45	9.32	SD141-1000
97394738	-	100.00	99.96	99.88	99.34	98.52	95.84	82.30	52.57	32.13	18.42	11.34	8.21	4.53	SD127
97394739	-	100.00	99.92	99.88	99.19	98.58	97.39	89.50	57.76	33.43	20.08	11.71	8.89	5.29	SD130
97394741	-	100.00	99.82	99.70	98.70	97.86	96.17	89.57	67.83	43.96	29.10	19.33	15.99	11.26	SD104
97394742	-	100.00	99.85	99.65	99.23	98.66	96.58	89.12	46.48	27.92	16.73	10.88	8.31	4.82	SD105
97394743	-	100.00	99.92	99.87	99.21	98.59	97.40	91.56	60.51	34.21	20.23	12.37	9.58	5.17	SD107
97394744	-	-	100.00	99.91	99.18	97.50	95.09	86.61	49.25	27.26	14.64	8.65	6.87	4.18	SD109
97394745	-	100.00	99.85	99.68	98.93	97.44	91.70	75.69	47.93	32.82	20.04	12.14	8.38	5.67	SD110
97394746	-	-	100.00	99.78	99.21	98.25	95.28	85.74	58.19	38.01	21.09	13.82	10.26	6.10	SD112
97394747	-	100.00	99.79	99.73	99.18	98.42	96.06	86.29	46.43	31.59	17.36	11.41	8.93	4.91	SD113
97394748	100.00	98.25	94.86	90.49	77.00	25.51	10.37	6.19	3.13	2.07	1.36	0.93	0.97	0.29	SD114
97394749-1	-	100.00	99.96	99.87	99.35	98.37	95.33	84.80	42.44	26.99	16.34	10.09	8.24	4.33	SD115
97394749-2	-	100.00	99.97	99.86	99.24	98.59	96.29	85.89	52.81	33.07	19.39	11.27	8.88	4.70	
97394749-3	-	100.00	99.82	99.64	99.12	98.24	95.27	84.29	50.48	31.56	18.37	10.96	8.33	4.63	
97394750	-	100.00	99.91	99.47	97.31	88.90	77.27	42.27	25.46	9.70	5.38	3.20	2.60	0.78	SD117
97394752	100.00	99.94	99.72	99.48	98.84	62.45	35.33	28.40	16.99	10.44	5.87	3.10	2.16	0.92	SD118
97394753	-	100.00	97.66	94.80	88.71	77.78	67.60	64.72	49.76	30.39	15.04	9.27	7.07	4.50	SD133
97394755	-	100.00	99.96	99.85	99.33	98.45	87.54	58.69	30.83	18.62	11.52	8.07	5.54	3.28	SD132
97394758	-	100.00	99.94	99.83	99.28	98.13	93.62	79.13	41.28	24.22	13.18	8.87	7.26	4.00	SD138
97394759	-	100.00	99.18	98.82	95.64	80.59	66.03	45.80	23.09	15.01	9.40	6.68	5.21	2.96	SD145
97394762	-	-	100.00	99.92	99.45	98.04	93.07	76.00	46.98	27.59	16.63	10.52	7.70	4.29	SD~~150~~ 123

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.
2. Sample 97394748 had a petroleum odor.

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1001-006

Rosa Environemtal and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97394751	100.00	99.50	99.29	98.63	96.36	87.92	76.27	40.47	19.31	10.03	6.11	3.64	2.25	1.45	SD117-1000
97394761	-	100.00	99.91	99.73	99.19	98.46	95.56	86.46	67.13	34.33	19.50	10.79	6.95	4.36	SD120
97394765	-	100.00	99.92	99.81	99.35	98.47	94.75	81.25	53.31	28.81	15.49	9.63	6.20	4.05	SD137

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.

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1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97394700	99.18	98.82	97.21	95.69	93.95	88.64	75.62	61.42	34.71	21.86	13.66	8.94	6.28	3.19	SD080
97394702	-	100.00	99.94	99.80	99.03	94.85	64.20	38.56	22.01	11.24	7.01	4.46	2.77	1.66	SD081
97394704	-	100.00	99.88	99.64	98.64	96.59	91.62	76.10	46.66	26.39	15.06	8.17	5.79	3.06	SD083
97394705	-	100.00	99.86	99.53	99.22	98.56	92.60	70.85	35.99	21.38	12.04	7.87	4.95	3.23	SD084
97394906	100.00	99.87	99.71	99.55	98.75	95.18	88.47	66.50	42.44	26.40	15.31	10.47	7.40	5.52	SD085
97394707	100.00	99.95	99.87	99.73	99.23	97.77	89.90	67.71	34.31	21.70	13.07	8.52	5.69	3.50	SD087
97394708	-	100.00	99.78	99.52	98.82	96.63	91.99	75.88	48.94	28.46	14.30	9.46	6.74	5.17	SD088
97394710	-	100.00	99.85	99.48	98.77	96.90	88.73	63.27	36.70	23.31	14.59	8.90	6.77	4.12	SD090
97394712	100.00	98.57	96.83	95.81	91.47	37.54	10.51	8.28	7.09	5.49	3.78	2.85	2.08	1.37	SD092
97384970	-	100.00	99.94	99.92	99.65	98.67	87.64	67.27	41.95	22.25	14.61	9.16	6.59	3.82	~~SD113~~ SD101

Notes to the testing:

1. Apparent grain size distributions according to PSEP protocols.

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1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97394711	-	100.00	99.97	99.88	99.28	98.18	92.83	79.28	47.82	28.46	16.75	10.27	7.44	4.09	SD093
97394713	99.44	94.41	91.97	91.05	88.00	36.26	9.01	6.92	5.70	4.47	3.06	2.04	1.68	0.99	SD072-100
97394714	-	100.00	99.89	99.64	99.25	97.75	90.64	73.64	54.40	32.72	18.14	11.51	9.45	6.49	SD097
97394715	-	100.00	99.99	99.91	99.62	98.59	94.71	74.04	32.78	14.69	9.10	6.33	4.83	2.93	SD100
97394716	-	100.00	99.87	99.81	99.39	98.09	87.38	71.73	41.49	24.35	13.00	7.86	5.48	3.31	SD106
97394718	-	100.00	99.95	99.91	99.31	98.26	92.67	79.94	57.45	31.28	17.08	9.48	6.65	2.81	SD108
97394719	-	100.00	99.88	99.71	99.32	98.57	93.82	79.24	50.88	29.56	17.45	10.37	7.12	4.08	SD111
97394720	-	100.00	99.96	99.88	99.59	99.00	92.77	78.98	55.99	32.13	17.39	9.01	6.04	3.12	SD116
97394722	-	100.00	99.96	99.88	99.50	98.97	96.12	85.79	53.74	31.32	17.24	9.56	6.61	3.69	SD119
97394723	-	100.00	99.96	99.86	99.54	99.18	97.62	90.90	64.53	39.60	21.77	12.26	8.12	4.50	SD122
97394724	-	100.00	99.97	99.93	99.64	99.05	87.78	70.47	47.91	27.56	15.01	8.96	5.70	3.10	SD121
97394725-1	100.00	99.83	99.79	99.51	98.25	91.94	82.87	68.91	51.24	37.84	24.24	13.49	8.44	4.89	SD129
97394725-2	-	100.00	99.86	99.60	98.03	91.97	83.15	68.78	51.65	36.27	23.87	13.14	8.35	5.33	—
97394725-3	-	100.00	99.22	99.00	97.64	91.60	83.08	70.03	53.19	39.02	26.69	14.86	9.69	4.99	—
97394726	-	100.00	99.95	99.51	98.06	95.87	94.07	92.37	85.44	53.74	24.06	11.30	7.83	4.59	SD134
97394727	-	100.00	95.50	89.80	72.73	35.01	22.43	15.70	7.88	4.62	2.08	0.74	0.57	0.25	SD136
97394728	-	-	100.00	99.76	99.55	98.96	97.41	94.60	89.69	56.39	28.25	16.31	10.33	6.58	SD139
97394731	-	100.00	99.85	99.58	98.10	88.55	75.50	60.40	39.30	25.90	18.11	11.75	8.16	4.50	SD148
97394732	-	100.00	99.91	99.82	99.54	99.05	95.44	83.03	58.71	33.88	19.19	10.72	6.89	3.94	SD124
97394733	-	100.00	99.96	99.89	99.55	99.22	98.63	95.20	68.56	43.79	23.63	13.60	8.34	5.06	SD126
97394734	-	100.00	99.54	98.90	97.46	95.17	89.73	81.63	69.29	44.87	24.34	13.72	10.62	6.50	SD128
97394736	-	100.00	99.88	99.76	99.50	99.20	98.31	91.40	63.48	35.33	17.93	9.96	7.08	4.35	SD125

Notes to the Testing:

1. Apparent grain size distributions, according to PSEP protocol.
2. Sample 97394726 had piece of wood approximately 2-3 inches long excluded from the analysis.

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1001-006

Rosa Environmental and Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 4000-0027-001-2019-36

Sample No.	Gravel				Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	1/2"	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31	15.6	7.8	3.9	2	1	
97384760	-	100.00	99.62	99.45	98.98	96.91	86.07	51.55	28.40	16.78	10.34	7.70	4.98	3.16	0.00	SD150
97384968	-	100.00	99.96	99.85	99.45	98.68	94.35	79.87	48.93	29.33	15.13	10.19	6.99	4.12	0.00	SD102

Notes to the Testing:

1. Apparent grain size distribution according to PSEP protocols.

Roy F. Weston, Inc.
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MEMORANDUM

DATE: 3 February 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Grainsize
SDG: 1001-006
Site: Willamette River

WORK ASSIGNMENT NO.: 46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AABX

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, RI Manager, WESTON, Seattle (memo only)

The quality assurance review of 39 samples, SDG 1001-006, collected from the Willamette River has been completed. The sediment samples were analyzed for grainsize by Rosa Environmental. The samples were numbered:

97424900	97424903	97424904	97424906	97424909
97424910	97424912	97424913	97424915	97424916
97424918	97424919	97424920	97424921	97424923
97424931	97424953	97424960	97424902	97424907
97424925	97424927	97424929	97424933	97424935
97424937	97424939	97424941	97424942	97424943
97424944	97424945	97424947	97424948	97424949
97424951	97424954	97424956	97424958	

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

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1. Detection Limits—Acceptable

   Analyses met project required quantitation limits.

2. Laboratory Triplicate Analysis

   The laboratory triplicate relative standard deviation was below the QC limit of 40%.

3. Field Duplicate Analysis

   Samples 97424915/97424916 and 97424942/97424943 were field duplicates. Results exhibited acceptable agreement. Relative percent differences (RPDs) criteria were applied when both sample results exceeded the quantitation limits by a factor of five or more.

4. Sample Analysis

   No unusual problems were noted. Sample 97424907 had two pieces of wood, approximately 3 inches long, that were excluded from the analysis.

5. Laboratory Contact

   No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

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R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

Table 1. Apparent Grain Size Distribution Summary
Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97424900	100.00	99.94	99.83	99.42	98.83	97.79	91.97	77.45	60.94	42.10	27.08	17.36	11.89	7.87	SD001 A
97424903	99.97	96.51	95.61	93.98	83.20	66.98	63.31	61.54	57.36	44.55	29.35	18.42	12.60	8.60	SD136 A
97424904	100.00	99.94	99.84	99.55	99.00	96.08	91.36	86.56	72.37	46.73	28.09	17.66	11.85	7.96	SD141 A
97424906	-	100.00	99.89	98.85	96.55	93.11	89.13	77.17	56.56	36.08	22.02	13.85	10.01	6.86	SD138A
97424909	-	100.00	99.76	99.53	98.78	94.59	89.44	76.49	60.71	41.56	27.26	17.88	12.56	9.03	SD007 A
97424910	100.00	99.75	99.45	98.95	97.95	93.37	82.01	67.22	49.38	32.76	20.74	13.51	9.52	6.97	SD017A
97424912	-	100.00	99.52	98.93	97.84	95.01	88.93	76.54	60.01	41.81	27.56	17.97	12.56	8.73	SD035A
97424913	-	100.00	99.81	99.41	97.61	83.88	75.97	64.31	45.87	29.55	18.23	12.02	8.05	5.31	SD049A
97424915	-	100.00	99.91	99.66	99.16	96.54	91.63	82.42	64.69	41.98	26.09	16.85	11.59	7.83	SD048A
97424916	100.00	99.53	98.73	97.75	93.83	77.56	71.10	60.56	47.17	30.53	18.96	12.46	8.72	6.25	SD048-1000y
97424918	100.00	96.10	94.40	93.01	88.49	79.72	71.58	61.58	48.65	33.71	22.27	14.95	9.99	6.92	SD055A
97424919	100.00	99.35	98.87	98.08	95.93	90.26	75.51	51.89	33.61	21.10	14.06	9.55	6.25	4.13	SD053A
97424920	-	100.00	99.90	99.16	96.55	88.87	76.58	68.64	61.90	44.57	20.46	11.21	7.50	5.64	SD133A
97424921-1	-	100.00	99.98	99.82	98.93	98.18	96.25	86.43	72.62	47.78	28.88	17.37	11.47	7.69	SD127A
97424921-2	-	100.00	99.89	99.61	98.91	98.39	96.74	87.28	68.84	43.55	26.31	16.48	11.24	7.50	—
97424921-3	-	100.00	99.89	99.53	99.00	98.23	96.38	86.96	71.10	44.55	26.82	16.22	10.64	7.39	—
97424923	-	100.00	99.86	99.67	99.23	98.62	96.23	86.50	70.36	43.17	25.22	15.75	11.27	8.16	SD122A
97424931	-	100.00	99.36	99.18	98.47	96.50	87.20	68.99	52.07	33.23	21.07	13.87	9.65	6.98	SD102A
97424953	-	100.00	99.78	99.32	98.67	97.39	93.11	78.89	57.54	36.91	23.55	15.37	10.08	6.96	SD071A
97424960	-	100.00	99.87	99.65	98.78	97.71	92.36	78.00	60.06	36.46	22.99	14.56	9.49	6.03	SD151A

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.

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Rosa Environmental Geotechnical Laboratory, LLC

Roy F. Weston, Inc.
Project No.: 0400-027-001-2019-36

Table 2. Apparent Grain Size Distribution Summary
Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay		
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31.00	15.60	7.80	3.90	2.00	1.00	
97424902	100.00	99.87	99.48	98.81	97.70	95.92	93.65	89.36	75.93	54.11	32.93	19.31	14.46	10.51	SD074A
97424907	100.00	99.20	98.20	97.09	93.85	87.81	78.08	63.41	49.67	35.46	24.51	16.56	12.22	8.64	SD013A
97424925	-	-	100.00	99.94	99.51	98.70	97.43	90.61	73.83	51.11	31.92	20.31	14.49	9.47	SD125A
97424927	-	100.00	99.83	99.55	98.71	97.36	91.72	77.04	58.05	34.14	18.57	11.03	7.81	5.18	SD116A
97424929	-	100.00	99.76	99.36	98.36	95.82	90.82	77.39	54.69	32.30	18.69	11.35	8.05	5.22	SD106A
97424933	-	100.00	98.60	96.62	92.04	83.97	73.80	55.76	39.15	24.64	15.14	10.06	7.14	4.77	SD096A
97424935	-	100.00	99.99	99.87	99.48	98.91	88.23	67.22	42.99	26.74	16.65	11.36	8.28	5.79	SD057A
97424937	100.00	99.77	98.86	98.09	96.80	92.09	83.76	71.07	58.70	39.59	25.98	17.34	12.01	8.18	SD092A
97424939	100.00	99.98	99.49	99.00	98.09	90.46	85.03	77.99	57.72	44.90	31.80	24.80	20.19	17.43	SD100A
97424941	-	100.00	99.59	99.18	98.65	97.30	93.42	80.25	59.06	34.83	22.66	14.92	10.73	7.12	SD090A
97424942	100.00	99.77	99.54	99.11	98.05	95.93	89.69	72.26	49.87	29.13	17.95	11.78	8.30	5.31	SD084A
97424943	-	100.00	99.39	98.64	97.76	95.71	89.92	73.39	53.25	31.13	20.14	12.82	8.78	5.53	SD084-1000X
97424944	-	100.00	99.99	99.69	97.19	84.30	75.21	65.75	53.12	37.34	23.92	15.34	10.99	7.43	SD031A
97424945	-	100.00	98.86	98.28	96.80	90.16	81.18	70.44	58.33	43.23	28.16	17.43	12.18	8.04	SD023A
97424947-1	-	100.00	99.93	99.62	96.86	83.40	70.34	54.19	36.38	22.03	14.38	8.07	6.89	4.83	SD072A
97424947-2	-	100.00	99.82	99.51	96.39	83.50	69.70	53.41	35.02	22.47	13.97	9.41	6.37	4.65	—
97424947-3	-	100.00	99.88	99.52	96.72	83.05	69.87	53.40	35.67	22.77	14.26	10.03	7.28	4.89	—
97424948	100.00	99.94	99.00	97.92	96.01	85.56	66.78	50.87	35.14	21.73	13.45	8.93	6.29	4.16	SD081A
97424949	-	100.00	99.88	99.66	99.14	98.15	91.77	67.59	42.94	24.65	13.83	8.44	5.40	3.22	SD117A
97424951	-	100.00	98.76	97.87	93.05	76.71	70.10	59.51	45.45	29.28	19.34	13.53	9.25	6.57	SD120A
97424954	-	100.00	99.93	99.74	98.79	97.41	92.73	78.45	58.11	34.64	20.98	13.44	9.64	6.10	SD135A
97424956	-	100.00	99.95	99.50	95.94	84.77	69.75	45.18	26.22	16.98	11.85	8.45	5.97	4.04	SD150A
97424958	100.00	99.95	99.65	98.95	97.70	93.99	86.61	73.36	54.30	38.66	23.33	16.33	11.79	7.41	SD143A

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.
2. Sample 97424902 had the dispersant added twice, which was corrected during data reduction.
3. Sample 97424907 had two pieces of wood, approximately 3 inches long excluded from the analysis.

01332

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Total Organic Carbon

Roy F. Weston, Inc.
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MEMORANDUM

DATE: 9 January 1998

TO: John Meyer, WAM, U.S. EPA, Region X

FROM: Jennifer M. Baier, Environmental Chemist, WESTON, Seattle JMB
RNM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Total Organic Carbon Analysis Results
SDG: T873
Site: Willamette River

WORK ASSIGNMENT NO.:46-23-0JZZ

DOC. CONTROL NO.: 4000-019-036-AAAR

WORK ORDER NO.: 4000-019-036-5200-00

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Karen Stash, Project Manager, WESTON, Seattle (memo only)

The quality assurance review of 10 samples, SDG T873, collected from the Willamette River has been completed. The sediment samples were analyzed for total organic carbon (TOC) by Analytical Resources, Inc. (ARI), of Seattle, WA. The samples were numbered:

97384060	97384062	97384063	97384064
97384066	97384067	97384068	97384069
97384071	97384070		

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract.

1. Holding Times

All samples were analyzed within holding time criteria.

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2. Instrument Detection Limits

Laboratory reporting limits (RL) are equal to or less than the project-required detection limits.

3. Initial and Continuing Calibration Verification

All results met control limits of 90 to 110 percent recovery of the true value for both initial and continuing calibration.

4. Blanks

a. Laboratory Method Blanks

No analytes were detected in laboratory method blanks.

b. Field Blanks

No field blank samples were associated with this sample delivery group.

5. Laboratory Control Sample

The recoveries for TOC were within the control limits of 70 - 130 percent.

6. Laboratory Duplicate Sample Analysis

All relative percent differences (RPD) between analytical results met QC criteria of 35 percent (for concentrations greater than 5 times the quantitation limit).

7. Spiked Sample Analysis

Matrix spike recoveries met QC criteria of 75 to 125 percent.

8. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

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9. Laboratory Contact

Sample 97384070 should not have been analyzed. Some sample containers were received by the laboratory past holding time limits; therefore, the station was resampled. Results from the new sample will be used instead of 97384070.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected.

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the CRDL or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

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ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD001-0000

Sample No: 9738 4060

Lab Sample ID: T873A
LIMS ID: 97-17222
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MB
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	58.5
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.0

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

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ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD003-0000

Sample No: 9738 4062

Lab Sample ID: T873B
LIMS ID: 97-17223
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MP
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	57.9
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.8

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD005-0000

Sample No: 9738 4063

Lab Sample ID: T873C
LIMS ID: 97-17224
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MP
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	52.3
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.5

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD011-0000

Sample No: 9738 4064

Lab Sample ID: T873D
LIMS ID: 97-17225
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MB
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	47.1
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.8

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD015-0000

Sample No: 9738 4066

Lab Sample ID: T873E
LIMS ID: 97-17226
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MB
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	51.2
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.6

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD017-0000

Sample No: 9738 4067

Lab Sample ID: T873F
LIMS ID: 97-17227
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MAP
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	48.3
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	2.3

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD018-0000

Sample No: 9738 4068

Lab Sample ID: T873G
LIMS ID: 97-17228
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	42.3
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.8

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD019-0000

Sample No: 9738 4069

Lab Sample ID: T873H
LIMS ID: 97-17229
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized:
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	46.7
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.5

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD020-0000

Sample No: 9738 4070

Lab Sample ID: T873I
LIMS ID: 97-17230
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MP
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	45.6
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	2.0

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97

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ANALYTICAL
RESOURCES
INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

WR-SD-SD024-0000

Sample No: 9738 4071

Lab Sample ID: T873J
LIMS ID: 97-17231
Matrix: Sediment

QC Report No: T873-Roy F. Weston
Project: 04000-019-036-5100-00

Date Sampled: 09/17/97
Date Received: 09/19/97

Data Release Authorized: MP
Reported: 10/16/97 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	09/24/97 092497#1	EPA 160.3 SM 2540 B		0.01	Percent	46.3
Total Organic Carbon	09/26/97 092697#1	Plumb,1981		0.0050	Percent	1.6

RL Analytical reporting limit
U Undetected at reported detection limit

Report for T873 received 09/19/97