CAPITOL LAKE 2000
ADAPTIVE MANAGEMENT PLAN

Sediment Characterization Report

Prepared for

Entranco

and

Washington Department of General Administration

June 2000

HERRER
ENVIRONMENT
CONSULTAN

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Sediment Characterization Report

Prepared for

Entranco
10900 NE 8th Street, Suite 300
Bellevue, Washington 98004

and

Washington Department of General Administration
206 General Administration Building
PO Box 41012
Olympia, Washington 98504-1012

Prepared by

Herrera Environmental Consultants
2200 Sixth Avenue, Suite 601
Seattle, Washington 98121
Telephone: 206/441-9080

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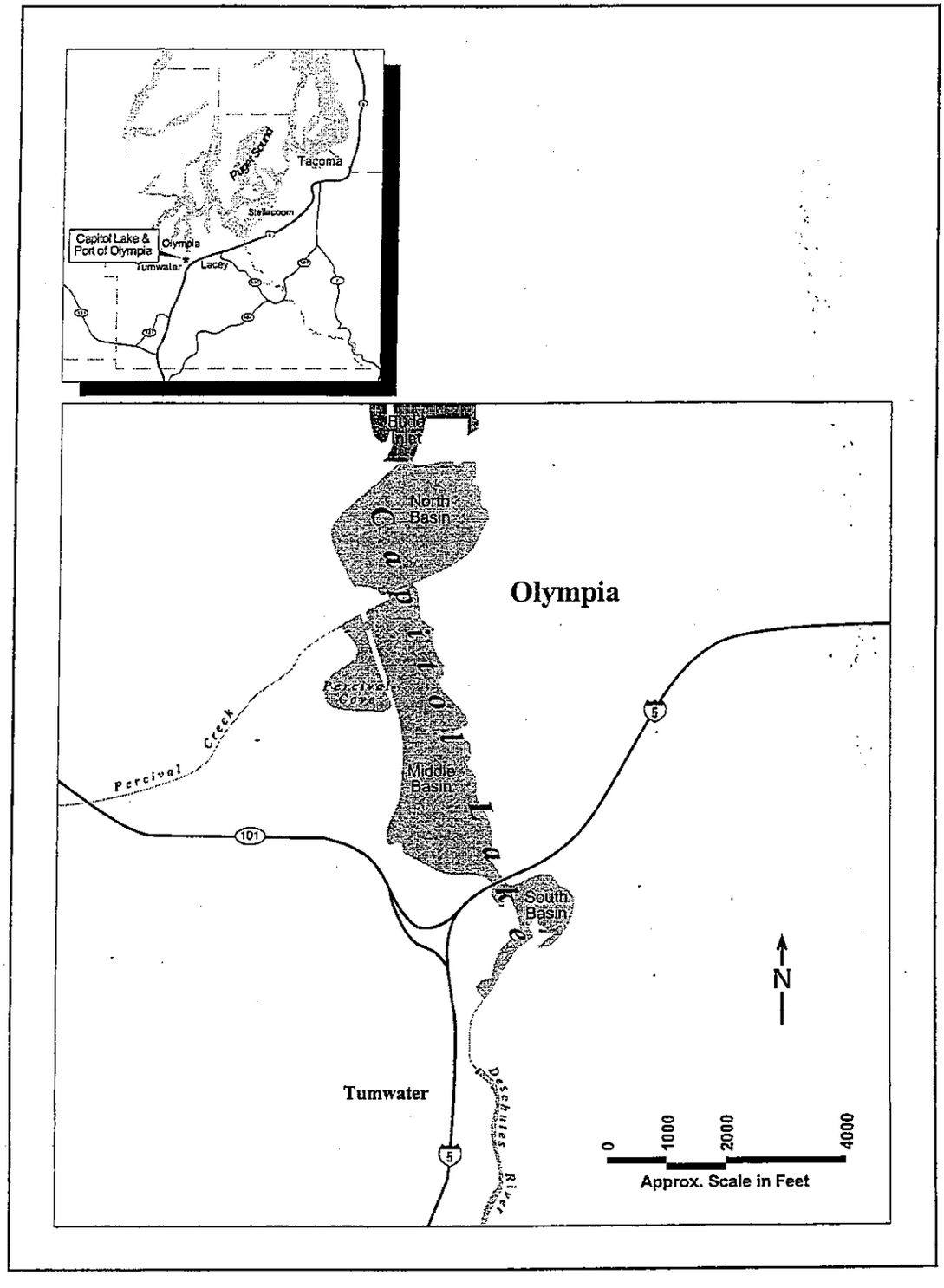
Introduction

This report presents methods and results of the preliminary sediment characterization of the middle basin sediment trap of Capitol Lake, Olympia Washington (Figure 1). As part of the *Capitol Lake Adaptive Management Plan,* the Washington State Department of General Administration is evaluating management alternatives to maintain the beneficial uses of Capitol Lake (i.e., recreation, aesthetics, fisheries, and flood control). Dredging the middle basin or a portion of it (i.e., the sediment trap) is included in several of the management alternatives currently under evaluation. If a management alternative that includes dredging the middle basin sediment trap is selected, the dredged sediments will require disposal at either an upland disposal site in Thurston County or an open-water disposal site in Puget Sound.

Sediment chemistry testing is required under the Puget Sound Dredged Disposal Analysis (PSDDA) program to determine whether sediments are suitable for open-water disposal in Puget Sound. For upland disposal, sediment chemistry testing requirements vary with the disposal facility and local jurisdictions. In Thurston County, these requirements generally follow Washington Department of Ecology (Ecology) guidelines for the Model Toxics Control Act (MTCA) (WAC 173-340) and Thurston County guidelines for solid waste handling (Thurston County 1996).

Previous sediment characterizations of the middle basin were completed in 1994 and 1995 (Entranco 1994, 1996). The 1994 characterization determined that the middle basin sediments were suitable for upland disposal. The 1995 characterization measured 76 required PSDDA parameters at concentrations below the PSDDA screening level, except for benzoic acid. Benzoic acid was detected at three of six sample locations at concentrations exceeding the PSDDA maximum level criterion. Based on these results, sediments from Capitol Lake were determined to not be suitable for open-water disposal without additional testing.

The objective of this preliminary characterization was to further evaluate dredging as a lake management alternative and to assess the acceptability of dredged sediments from the middle basin sediment trap for either open-water disposal in Puget Sound or upland disposal in Thurston County. Sediment monitoring was conducted in accordance with the sampling and analysis and quality assurance plan (Herrera 2000). This report briefly describes sampling methods, presents data validation results, summarizes sample testing results, and concludes with the overall findings of this study.



Source: Entranco (1999)

Figure 1. Vicinity map of Capitol Lake, Olympia, Washington.

Methods and Materials

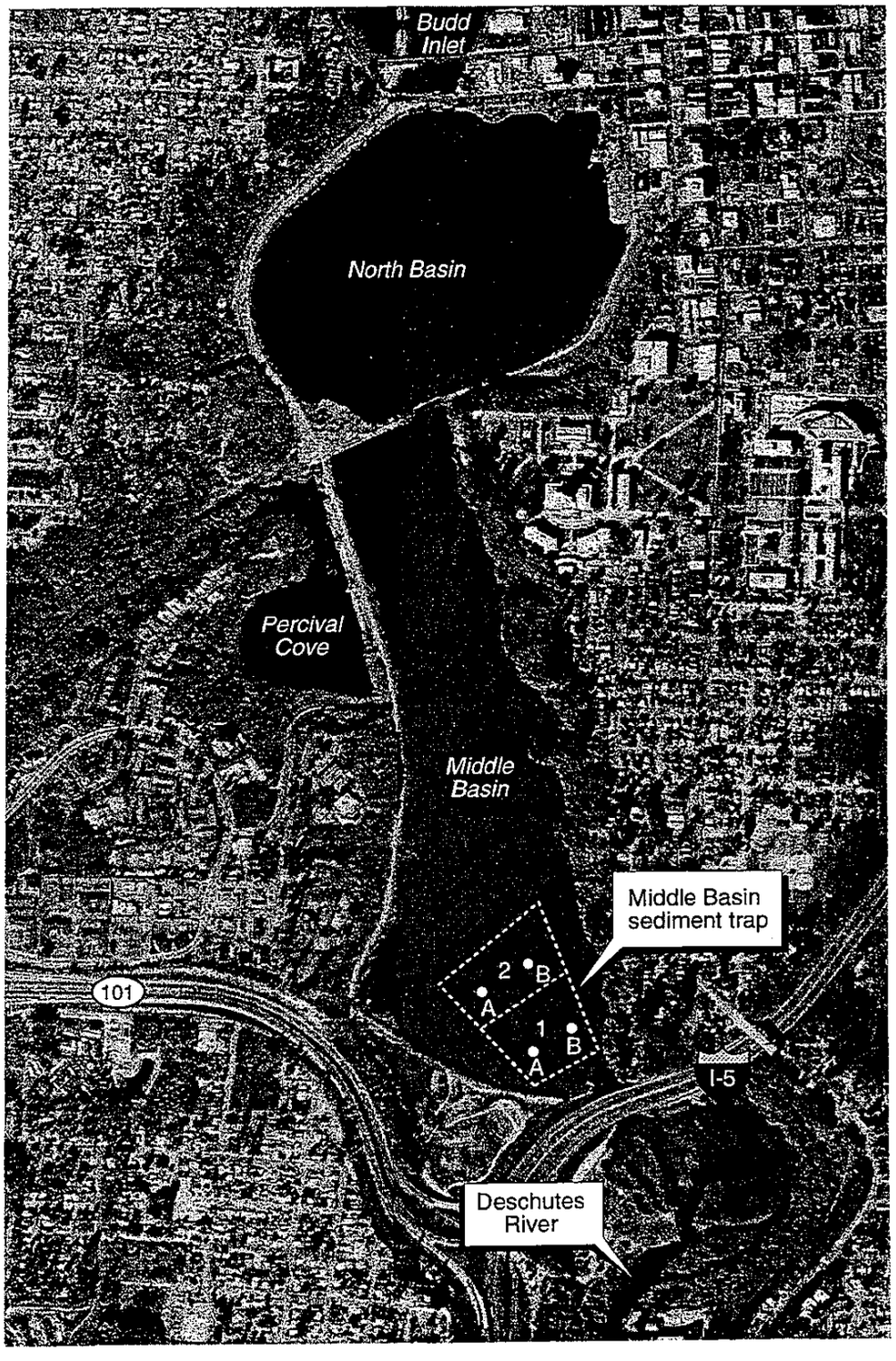
Sediment samples were collected and analyzed according to the sampling and analysis plan (Herrera 2000) that was developed in compliance with PSDDA (2000) guidelines. The following sections describe sampling locations, sampling procedures, and analytical testing procedures.

Sediment Sampling Locations

The middle basin sediment trap was separated into two dredge sectors (1 and 2), each containing approximately 35,000 cubic yards of sediment (Figure 2). Each dredge sector was divided into two sub-sectors (A and B) of equal area and volume. Four sediment sampling stations (1-A, 1-B, 2-A, and 2-B) were established near the center of each sub-sector (see Figure 2). The location of each sampling station was determined from a detailed map prior to initiating the sampling. On the day preceding sampling, the location of the four sample stations were determined by measuring distance and direction from two onshore reference locations, and marked with buoys. A differential global positioning system (DGPS) was then used to determine the exact location of each sampling station. On the day of sampling, the sample boat anchored as close as possible to each buoy, and the exact position of each individual core location was determined by measuring distance and direction from the buoy station marker. Horizontal positions obtained by DGPS were measured in latitude and longitude in accordance to PSDDA (2000) protocols. Accuracy of the DGPS system is within ±3 meters. The coordinates of the four sample stations and the location of each individual sediment core collected during the study are shown in Table 1.

Table 1. Capitol Lake sediment sample locations.

Dredge Sector	Sample Station	Individual Core Designation	Sample Station Position (Latitude)	Sample Station Position (Longitude)	Individual Core Location Measured from Sample Station Position
1	1-A		47° 01' 30.12651"N	122° 54' 20.52993"W	
		1-A-1			3 ft. south
		1-A-2			5 ft. south
	1-B		47° 01' 32.24944"N	122° 54' 17.61266"W	
		1-B-1			27 ft. south
		1-B-2			9 ft. south
2	2-A		47° 01' 32.25179"N	122° 54' 25.74132"W	
		2-A-1			1 ft. east
		2-A-2			10 ft. west
	2-B		47° 01' 36.84880"N	122° 54' 22.12985"W	
		2-B-1			2 ft. west
		2-B-2			2 ft. west, 3 ft. north
		2-B-3			3 ft. south
		2-B-4			3 ft. east
		2-B-5			3 ft. east, 3 ft. south



Legend

----------	Dredged section boundary
1	Dredged section number
• A	Sediment sampling sites

0 1000 feet
Scale

Source: Entranco

Figure 2. Capitol Lake middle basin sediment trap dredging sectors and sediment sampling locations.

Sediment Sampling Procedures

Surficial sediment samples (0 to 2.5 feet) were collected on April 25, 2000 from the four sampling stations by scuba divers using a 4-foot stainless steel hand sediment coring device (Wildco #2424-A50) with 2-inch-diameter liner tubes. The core liners were made of clear thermoplastic, and the end caps of each tube were made of polyethylene. Puget Sound Estuary Program protocols (PSEP 1997) were employed for all sample collection.

At each sampling station, scuba divers drove the core sampler to a depth of 4 feet. After each core was collected, the core was transferred to the boat, both ends of the tube were capped and taped, and the core was placed on ice and covered with a plastic tarp. After a sufficient number of cores were collected to provide the required sample volume (i.e., 2.5 liters) for physical and chemical analysis, the cores were delivered to an onshore processing station. At the processing station, the overlying water was slowly decanted from the core tube, the core was extruded into a stainless steel pan, and sample observations were made as described below.

Subsamples for analysis of sulfide and volatile organic compounds were immediately collected from various locations in one randomly selected core prior to any mixing and subsampling for other analyses. For sulfide analysis, a subsample (approximately 50 grams) was placed in the precleaned sample container, immediately followed by 5 milliliters (mL) of 2N zinc acetate. For volatile analysis, a subsample was placed in a separate precleaned 4-ounce sample container, with no headspace remaining in the container. The remaining sediments were thoroughly mixed (homogenized), placed in pre-cleaned containers, and stored in a cooler with ice. Samples were delivered within 24 hours of collection to the analytical laboratory (Analytical Resources, Inc. in Seattle, Washington).

A sufficient quantity of sediment (i.e., 2.5 liters) was obtained at each sampling station by collecting and compositing two cores for physical and chemical testing. At station 2-B, a total of five cores were collected and composited to provide additional sediment for quality control testing (i.e., matrix spike-matrix spike duplicate and field duplicate). The blind field duplicate sample collected at station 2-B was labeled as station 3-A.

All sampling equipment was thoroughly cleaned and decontaminated between stations following PSEP protocols. The equipment was rinsed with tap water to remove sediment, scrubbed with a brush and detergent (Alconox soap), thoroughly rinsed with clean tap water, rinsed with nitric acid, and given a final rinse with deionized water. A cross-contamination (wipe) blank was obtained from the sample processing equipment by wiping a decontaminated bowl and spoon with ashless filter paper for metals analysis, and by wiping with hexane-soaked gauze for semivolatile organics analysis.

Sample observations were recorded in a waterproof notebook. Recorded observations included: station location data, sample collection time, core penetration depth, sample depth, and sediment characteristics (i.e., color, apparent grain size, biological material, vegetative material, odor, and oily sheen). Photographs were taken to document sample integrity and characteristics.

In addition to the sediment samples collected, lake water was collected in a pre-cleaned 20 L carboy from station 2-B to be used for elutriate testing (see description below).

Analytical Testing Procedures

Analytical Resources, Inc. (Seattle, Washington) analyzed sediment samples for selected conventionals, metals and organics, and analyzed water samples for conventionals and metals. Rosa Environmental and Geotechnical Laboratory (Seattle, Washington) analyzed these sediment samples for grain size analysis, specific gravity, moisture content and Atterberg limits, and conducted the elutriate tests. All analyses followed methods approved by the U.S. Environmental Protection Agency (USEPA) and PSEP protocols. Analytical parameters, analytical methods, and reporting limits are summarized in Table 2.

Table 2. Analytical parameters and methods for Capitol Lake sediment samples.

Parameter	Method	Method Number[a]	Reporting Limit
Sediment Quality Analysis			
Conventional Parameters			
Grain size analysis	Sieve/hydrometer	PSEP (1997)	0.10 %
Total solids	Gravimetric	EPA 160.3	0.01 %
Total volatile solids	Gravimetric, 440 C	PSEP (1997)	0.01 %
Specific gravity	Gravimetric	ASTM-D-854-98	NA
Moisture content	Gravimetric, 90 C	PSEP (1997)	0.01 %
Atterberg limits		ASTM-D-4318-98	NA
Total organic carbon	Combustion/infrared	Plumb (1981)	0.005 %
Sulfide	Methylene blue	EPA 376.2	1.4 - 2.2 mg/kg
Ammonia	Automated phenate	EPA 350.1	0.24 - 0.61 mg-N/kg
Total petroleum hydrocarbons	GC/FID	NWTPH-HCID[b]	20 - 100 mg/kg
Metals			
Antimony	ICP	EPA 6010	2 - 5 mg/kg
Arsenic	ICP	EPA 6010	2 - 5 mg/kg
Cadmium	ICP	EPA 6010	0.1 - 0.2 mg/kg
Chromium	ICP	EPA 6010	0.2 - 0.5 mg/kg
Copper	ICP	EPA 6010	0.1 - 0.2 mg/kg
Lead	ICP	EPA 6010	1 - 2 mg/kg
Mercury	CVAA	EPA 7471	0.01 - 0.02 mg/kg
Nickel	ICP	EPA 6010	0.5 - 0.9 mg/kg
Silver	ICP	EPA 6010	0.2 - 0.3 mg/kg
Zinc	ICP	EPA 6010	0.3 - 0.6 mg/kg
TCLP Metals			
Arsenic	ICP	EPA TCLP 6010	0.2 mg/L
Barium	ICP	EPA TCLP 6010	0.02 mg/L
Cadmium	ICP	EPA TCLP 6010	00.01 mg/L
Chromium	ICP	EPA TCLP 6010	0.02 mg/L
Lead	ICP	EPA TCLP 6010	0.1 mg/L
Mercury	CVAA	EPA TCLP 7471	0.0001 mg/L
Selenium	ICP	EPA TCLP 6010	0.2 mg/L

Parameter	Method	Method Number[a]	Reporting Limit
Silver	ICP	EPA TCLP 6010	0.2 mg/L
Organic Compounds			
Semivolatile[c]	GC/MS	EPA 8270	0.9 - 200 µg/kg
Volatile	P&T	EPA 8260	0.9 – 3.5 µg/kg
Pesticide/PCB	GC/MS	EPA 8081	1 – 40 µg/kg
Water Quality Analysis			
Conventional Parameters			
Elutriate test	---	EPA (1994)	---
Hardness	ICP	EPA 6010	0.07-0.350 mg/L
Nitrate+nitrite	Auto Cd reduction	EPA 353.2	0.01 mg-N/L
Metals			
Arsenic	ICP	EPA 200.8	0.0002 - 0.002 mg/L
Cadmium	ICP	EPA 200.8	0.0002 - 0.002 mg/L
Copper	ICP	EPA 200.8	0.0005 - 0.005 mg/L
Lead	ICP	EPA 200.8	0.001 - 0.01 mg/L
Mercury	CVAA	EPA 7471	0.0001 -0.001 mg/L
Zinc	ICP	EPA 200.8	0.004 - 0.04 mg/L

[a] EPA method numbers are from EPA (1983, 1992, and 1994). PSEP methods are from PSEP (1995 and 1997).
[b] Washington Department of Ecology NWTPH-HCID hydrocarbon screening method (Ecology 1997).
[c] 1,2 Dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene analyzed using EPA 8260.

mg/kg milligrams per kilogram.
mg/L milligrams per liter.
µg/kg micrograms per kilogram.
TCLP toxicity characteristic leaching procedure.
ICP inductively coupled plasma.
GC/MS gas chromatographic mass spectrophotometry.
CVAA cold vapor atomic absorption.
GC/FID gas chromatograph with flame ionize detection.
P&T purge and trap.

PSDDA Open-Water Disposal Testing

Sediment samples were analyzed for PSDDA chemicals of concern to determine the acceptability of dredged sediments for open-water disposal. PSDDA chemicals of concern include metals (antimony, arsenic, cadmium, copper, lead, mercury, nickel, silver, and zinc) and organic contaminants (semivolatile organic compounds, volatile organic compounds, pesticides, and polychlorinated biphenyls [PCBs]). Chemical concentrations were compared to PSDDA screening level (SL) and maximum level (ML) chemical guidelines to determine if biological testing is needed before a decision is made on the suitability for open-water disposal.

The PSDDA screening level corresponds to a sediment chemical concentration below which there is no reason to believe that open-water disposal would result in adverse biological effects. The PSDDA maximum level corresponds to a sediment chemical concentration above which there is a reason to believe that the material would be unacceptable for open-water disposal due to potential adverse biological effects. Sediment chemical concentrations between the screening level and maximum level require biological testing to determine the acceptability of the sediment for open-water disposal (PSDDA 2000).

Upland Disposal Testing

Sediment samples were analyzed for the Washington State Model Toxics Control Act (MTCA) cleanup regulation (WAC 173-340) chemicals of concern, to determine the acceptability of dredged sediments for upland disposal. MTCA chemicals of concern include metals (arsenic, cadmium, chromium, lead, and mercury), petroleum hydrocarbons, and organic contaminants (total carcinogenic polycyclic aromatic hydrocarbons [PAHs], volatile organic compounds, pesticides, and PCBs). Chemical concentrations were compared to the MTCA method A soil cleanup levels for unrestricted land uses to determine if the sediments are suitable for upland disposal.

The toxicity characteristic leaching procedure (TCLP) metals test was conducted on the sediments to determine the maximum concentration of metals available to leach into ground water if the sediments were disposed of at an upland location. This procedure assesses the potential metal toxicity to ground water from upland disposal of Capitol Lake sediments. The TCLP procedure complies with the Washington dangerous waste regulations (WAC 173-303-100) and Thurston County rules and regulations governing solid waste handling (Thurston County 1996). TCLP metals concentrations were compared to the Thurston County designated high risk wastes threshold levels to determine the acceptability of the sediments for disposal. Thurston County high risk wastes metals of concern include arsenic, barium, cadmium, chromium, lead, mercury, and silver.

Atterberg limits tests were conducted on the sediments to determine the liquid and plastic limits, which define the boundary between material states based on moisture content. The liquid limit and plastic limit define the water content boundaries between the plastic and viscous states. The plasticity index defines the complete range of the plastic state (University of Maine 2000). This information was collected to provide information on the suitability of the sediments for various types of dredging, dewatering, and disposal alternatives.

Elutriate Testing

Elutriate tests were conducted on the sediments to determine whether the Washington State surface water quality standards (WAC-173-201A) for selected metals (arsenic, cadmium, copper, lead, mercury, and zinc) would be exceeded during dredging operations. A standard elutriate test was performed using lake water collected at station 2-B and sediments collected from the four sampling stations. This standard test mixed lake water and sediment at a ratio of 3:1 wet weight. This mixture was aerated for one hour and allowed to settle for one hour (EPA 1994). After settling for one hour, a portion of the elutriate was removed and analyzed for total and dissolved metals (arsenic, cadmium, copper, lead, mercury, and zinc), hardness, and nitrate+nitrite-nitrogen. Samples of the raw lake water were also analyzed for the parameters noted above.

Total and dissolved metals concentrations were compared to acute toxicity (1-hour average) and chronic toxicity (4-day average) water quality criteria. Acute and chronic toxicity criteria are dependant on hardness for several metals (i.e., cadmium, copper, lead, and zinc).

Data Validation

Data validation methods followed procedures recommended for Puget Sound Dredged Disposal Analysis (PSDDA 1989), as set forth in the monitoring plan (Herrera 2000). The data validation report is presented in Appendix A. Methods were assessed by examining field notebooks, sampling data sheets, and laboratory reports for deviations from the monitoring plan. This review concluded that there were no significant deviations from the methods that would compromise the validity of the data. Some minor analytical variations were encountered with the testing. However, no data were rejected for failing to meet quality assurance criteria, and all estimated values were used in the data analysis. The data were deemed usable with consideration of the minor problems and the qualifiers explained below.

Antimony results for all sediment samples were qualified with *G* (detected value) or *UE* (undetected value) to indicate that the sample concentration is greater than the value shown. The antimony recovery value in the certified reference (77 percent) and the matrix spike (63.6 percent) were less than the PSDDA recommended limits of between 80 to 120 percent and between 75 to 125 percent, respectively.

All semivolatile analytes for sediment sample 1-A, all base/neutral semivolatile analytes for sediment sample 2-A, and pentachlorophenol results for all sediment samples were qualified with *G* or *UE* to indicate that the sample concentrations are greater than the values shown. All semivolatile analytes in sediment sample 1-A were qualified with *G* (detected value) or *UE* (undetected value) because two acid and two base/neutral surrogate recovery values were below the PSDDA recommended limits of greater than 50 percent. Base/neutral semivolatile analytes were qualified with *G* (detected value) or *UE* (undetected value) because two base/neutral surrogate revovery values were below the PSDDA recommended limits of greater than 50 percent. Pentachlorophenol results were qualified with *UE* (undetected value) because matrix spike and matrix spike duplicate recovery values were below the PSDDA recommended limits of greater than 50 percent.

Copper results in all elutriate water samples were qualified with *G* or *UE* to indicate that the sample concentration is greater than the value shown. The copper matrix spike recovery was below the laboratory control limits.

Results

Analytical results are summarized below for field observations, physical testing, chemical testing, and elutriate testing. Field observations recorded during the collection of sediment cores are presented in Appendix B. The laboratory report by Analytical Resources, Inc. for sediment physical and chemical testing, TCLP testing, and water quality testing is presented in Appendix C. The laboratory report by Rosa Environmental and Geotechnical Laboratory for sediment physical testing is presented in Appendix D. Validated sediment quality test results are presented in Table 3. Validated elutriate test results are presented in Table 4.

Field Observations

Field observations identified two distinct spatial groupings of sediment stations having similar physical characteristics. Samples collected from the southwesterly stations (1-A and 2-A) generally consisted of a layer of light brown organic material overlying dark gray silty sands with no odor or sheen. Samples collected from the northeasterly stations (1-B and 2-B) generally consisted of a thin layer of light gray organic material (or no organic layer) overlying olive gray silty sands and gravels with no odor or sheen. Vegetation and debris were observed in sediment cores collected from stations 2-A and 2-B.

Physical Testing

As with the field observations, the physical testing results demonstrated two spatial groupings of stations. The southwesterly stations (1-A and 2-A) exhibited higher percentages of moisture; fines; total volatile solids; and total organic carbon, ammonia, and sulfide than the northeasterly stations (1-B and 2-B). Grain size results indicated that the southwesterly stations (1-A and 2-A) are dominated by a mix of sand and silt, while the northeasterly stations (1-B and 2-B) are dominated by sand. Atterberg limits testing demonstrated that the northeasterly stations (1-B and 2-B) are non-plastic, while the southwesterly stations (1-A and 2-A) exhibit plasticity indices of 24.8 and 30.0, respectively.

Table 3. Results of sediment physical and chemical analyses, Capitol Lake middle basin sediment trap.

Parameter	PSDDA Chemical Criteria SL	PSDDA Chemical Criteria ML	MTCA Method A Cleanup Level	Thurston County Threshold Level	Sampling Station (see Figure 1) 1A	1B	2A	2B
Conventional Parameters								
Percent Gravel (>2mm)	---	---	---	---	0.25	15.2	5.2	0.5
Percent Sand (2mm-62.5µm)	---	---	---	---	52.8	81.4	45.8	92.4
Percent Silt (62.5µm-4µm)	---	---	---	---	36.8	3.0	37.6	5.7
Percent Clay (<4µm)	---	---	---	---	10.3	0.4	11.2	1.4
Percent Fines (<62.5µm)	---	---	---	---	47.1	3.4	48.8	7.1
Total solids (%)	---	---	---	---	53.2	82.2	53.0	72.0
Total volatile solids (%)	---	---	---	---	4.3	1.1	5.4	2.0
Total organic carbon (%)	---	---	---	---	2.3	0.3	2.0	0.8
Sulfide (mg/kg)	---	---	---	---	93	1.2	190	3.6
Ammonia (mg/kg)	---	---	---	---	98	6.3	86	36.0
Atterberg Limits (plasticity index)	---	---	---	---	24.8	NP	30.0	NP
Atterberg Limits (liquid limit)	---	---	---	---	56.2	NP	59.5	NP
Atterberg Limits (plastic limit)	---	---	---	---	31.3	NP	29.5	NP
Specific Gravity	---	---	---	---	2.70	2.82	2.60	2.8
Moisture content (%)	---	---	---	---	87.8	21.6	88.6	39.0
Metals (mg/kg dry weight)								
Antimony	150	200	---	---	4 UE	3 G	7 G	4 G
Arsenic	57	700	20	---	4 U	3 U	5 U	3 U
Cadmium	5.1	14	0.5	---	0.3	0.1	0.3	0.1 U
Chromium	---	---	100	---	24.3	15.5	26.8	18.4
Copper	390	1,300	---	---	29.4	12.5	38.3	15.2
Lead	450	1,200	250	---	8	3	10	4
Mercury	0.41	2.3	1	---	0.04	0.01 U	**0.49**	0.01
Nickel	140	370	---	---	22.0	18.7	24.8	20.2
Silver	6.1	8.4	---	---	0.3 U	0.2 U	0.3 U	0.2 U
Zinc	410	3,800	---	---	46.8	31.8	56.7	34.4
TCLP Metals (mg/L)								
Arsenic	---	---	---	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Barium	---	---	---	10	0.17	0.15	0.18	0.15
Cadmium	---	---	---	0.1	0.01 U	0.01 U	0.01 U	0.01 U
Chromium	---	---	---	0.5	0.02 U	0.02 U	0.02 U	0.02 U
Lead	---	---	---	0.5	0.1 U	0.1 U	0.1 U	0.1 U
Mercury	---	---	---	0.02	0.0001 U	0.0001 U	0.0001 U	0.0001 U
Selenium	---	---	---	---	0.2 U	0.2 U	0.2 U	0.2 U
Silver	---	---	---	0.5	0.02 U	0.02 U	0.02 U	0.02 U
Petroleum Hydrocarbons (mg/kg dry weight)								
Gasoline Range	---	---	100	---	20 U	20 U	20 U	20 U
Diesel Range	---	---	200	---	50 U	50 U	50 U	50 U
Other	---	---	200	---	100 U	100 U	100 U	100 U

Table 3. Results of sediment physical and chemical analyses, Capitol Lake middle basin sediment trap. (continued)

Parameter	PSDDA Chemical Criteria SL	PSDDA Chemical Criteria ML	MTCA Method A Cleanup Level	Thurston County Threshold Level	Sampling Station (see Figure 1) 1A	1B	2A	2B
ORGANICS (µg/kg dry weight)								
LPAHs								
Naphthalene	2,100	2,400	---	---	19 U	18 U	19 UE	20 U
Acenaphthylene	560	1,300	---	---	19 U	18 U	19 UE	20 U
Acenaphthene	500	2,000	---	---	19 U	18 U	19 UE	20 U
Flourene	540	3,600	---	---	19 U	18 U	19 UE	20 U
Phenanthrene	1,500	21,000	---	---	19 U	18 U	19 UE	20 U
Anthracene	960	13,000	---	---	19 U	18 U	19 UE	20 U
2-Methylnaphthalene	670	1,900	---	---	19 U	18 U	19 UE	20 U
Total LPAHs	5,200	29,000	---	---	19 U*	18 U*	19 U*	20 U*
HPAHs								
Fluoranthene	1,700	30,000	---	---	23 G	18 U	22 G	20 U
Pyrene	2,600	16,000	---	---	19 UE	18 U	19 UE	20 U
Benzo(a)anthracene	1,300	5,100	---	---	19 UE	18 U	19 UE	20 U
Chrysene	1,400	21,000	---	---	19 UE	18 U	19 UE	20 U
Total benzofluoranthenes[1]	3,200	9,900	---	---	19 UE	18 U	19 UE	20 U
Benzo(a)pyrene	1,600	3,600	---	---	19 UE	18 U	19 UE	20 U
Indeno(1,2,3-cd)pyrene	600	4,400	---	---	19 UE	18 U	19 UE	20 U
Dibenzo(a,h)anthracene	230	1,900	---	---	19 UE	18 U	19 UE	20 U
Benzo(g,h,i)perylene	670	3,200	---	---	19 UE	18 U	19 UE	20 U
Total HPAHs	12,000	69,000	---	---	23 G*	18 U*	22 G*	20 U*
Total PAHs (Carcenogenic)	---	---	1000	---	19 UE*	18 U*	19 UE*	20 U*
Chlorinated Hydrocarbons								
1,3-Dichlorobenzene	170	---	---	---	1.1 UE	0.9 U	1.2 U	1.0 U
1,4-Dichlorobenzene	110	120	---	---	1.1 UE	0.9 U	1.2 U	1.0 U
1,2-Dichlorobenzene	35	110	---	---	1.1 UE	0.9 U	1.2 U	1.0 U
1,2,4-Trichlorobenzene	31	64	---	---	19 UE	18 U	19 UE	20 U
Hexachlorobenzene (HCB)	22	230	---	---	19 UE	18 U	19 UE	20 U
Phthalates								
Dimethylphthalate	1,400	---	---	---	19 UE	18 U	19 UE	20 U
Diethylphthalate	1,200	---	---	---	19 UE	18 U	19 UE	20 U
Di-n-Butylphthalate	5,100	---	---	---	19 UE	18 U	19 UE	20 U
Butylbenzylphthalate	970	---	---	---	19 UE	18 U	19 UE	20 U
Bis(2-ethylhexyl)phthalate	8,300	---	---	---	21 G	18 U	20 G	20 U
Di-n-Octyl phthalate	6,200	---	---	---	19 UE	18 U	19 UE	20 U
Phenols								
Phenol	420	1,200	---	---	19 UE	18 U	19 U	20 U
2 Methylphenol	63	77	---	---	19 UE	18 U	19 U	20 U
4 Methylphenol	670	3,600	---	---	19 UE	18 U	19 U	20 U
2,4-Dimethylphenol	29	210	---	---	19 UE	18 U	19 U	20 U
Pentachlorophenol	400	690	---	---	96 UE	91 UE	96 UE	99 UE
Miscellaneous Extractables								
Benzyl alcohol	57	870	---	---	19 UE	18 U	19 UE	20 U
Benzoic acid	650	760	---	---	190 UE	180 U	190 U	200 U

Table 3. Results of sediment physical and chemical analyses, Capitol Lake middle basin sediment trap. (continued)

Parameter	PSDDA Chemical Criteria SL	PSDDA Chemical Criteria ML	MTCA Method A Cleanup Level	Thurston County Threshold Level	Sampling Station (see Figure 1) 1A	1B	2A	2B
Dibenzofuran	540	1,700	---	---	19 UE	18 U	19 UE	20 U
Hexachloroethane	1,400	14,000	---	---	19 UE	18 U	19 UE	20 U
Hexachlorobutadiene	29	270	---	---	19 UE	18 U	19 UE	20 U
N-Nitrosodiphenylamine	28	130	---	---	19 UE	18 U	19 UE	20 U
Volatile Organics								
Benzene	---	---	500	---	1.1 U	0.9 U	1.2 U	1.0 U
Trichloroethene	160	1,600	500	---	1.1 U	0.9 U	1.2 U	1.0 U
1,1,1 Trichloroethane	---	---	20,000	---	1.1 U	0.9 U	1.2 U	1.0 U
Tolulene	---	---	40,000	---	1.1 U	0.9 U	1.2 U	1.0 U
Tetrachloroethene	57	210	500	---	1.1 U	0.9 U	1.2 U	1.0 U
Ethylbenzene	10	50	20,000	---	1.1 U	0.9 U	1.2 U	1.0 U
Methylene chloride	---	---	500	---	3.2 U	2.8 U	3.5 U	2.9 U
Ethylene dibromide	---	---	1	---	1.1 U	0.9 U	1.2 U	1.0 U
Total Xylene	40	160	20,000	---	2.1 U	1.9 U	2.3 U	2.0 U
Pesticides & PCBs								
Total DDT	6.9	69	1,000	---	1.9 U*	2.0 U*	2.3 YU*	1.8 U*
p,p'-DDE	---	---	---	---	1.9 U	2.0 U	1.9 U	1.8 U
p,p'-DDD	---	---	---	---	1.9 U	2.0 U	1.9 U	1.8 U
p,p'-DDT	---	---	---	---	1.9 U	2.0 U	2.3 YU	1.8 U
Aldrin	10	---	---	---	0.96 U	2.0 U	0.96 U	0.92 U
Chlordane	10	---	---	---	0.96 U	0.98 U	0.96 U	0.92 U
Dieldrin	10	---	---	---	1.9 U	2.0 U	1.9 U	2.8 U
Heptachlor	10	---	---	---	0.96 U	0.98 U	0.96 U	0.92 U
Lindane	---	---	1,000	---	0.96 U	0.98 U	0.96 U	0.92 U
Arocolor 1016	---	---	---	---	19 U	20 U	19 U	18 U
Arocolor 1224	---	---	---	---	19 U	20 U	19 U	18 U
Arocolor 1248	---	---	---	---	19 U	20 U	19 U	18 U
Arocolor 1254	---	---	---	---	19 U	20 U	19 U	18 U
Arocolor 1260	---	---	---	---	19 U	20 U	19 U	18 U
Arocolor 1221	---	---	---	---	38 U	39 U	38 U	37 U
Arocolor 1232	---	---	---	---	19 U	20 U	19 U	18 U
Total PCBs	130	3,100	1,000	---	38 U*	39 U*	38 U*	37 U*

Notes:
D Diluted sample
E Estimated
G Estimate is greater than value shown
L Estimate is less than value shown
U Undetected at the detection limit shown
Y Raised detection limit due to background interference or to activity on instrument
NA Not applicable
NP Non-Plastic
52 Single underline denotes exceedance of PSDDA SL criteria
52 Solid block outline denotes exceedance of PSDDA ML criteria
52 Gray shading denotes exceedance of MTCA Level A criteria
52 Gray shading with a solid block outline denotes exceedance of Thurston County threshold level
* Value is the sum of detected values or, if all values are undetected, the highest detection limit

Table 4. Results of elutriate analyses, Capitol Lake middle basin sediment trap.

	Elutriate Test Results					Water Quality Criteria[a,b]									
	Sampling Station (see Figure 1)					Sampling Station (see Figure 1)									
						1-A		1-B		2-A		2-B		Lake	
Parameter	1-A	1-B	2-A	2-B	Lake	acute	chronic	acute	chronic	acute	chronic	acute	chronic	acute	chronic
Conventional Parameters															
Hardness (mg/L)	920	120	1100	110	38	---	---	---	---	---	---	---	---	---	---
Nitrate-nitrite (µg/L)	380	430	320	380	450	---	---	---	---	---	---	---	---	---	---
Total Metals (µg/L)															
Arsenic	55	9.1	42	8	0.4	---	---	---	---	---	---	---	---	---	---
Cadmium	11	0.6	5	0.3	0.2 U	---	---	---	---	---	---	---	---	---	---
Copper	808 G	82.1 G	1030 G	75.6 G	0.8 G	---	---	---	---	---	---	---	---	---	---
Lead	180	22	240	18	1 U	---	---	---	---	---	---	---	---	---	---
Mercury	1.1	0.2	24	0.1 U	0.1 U	---	0.012	---	0.012	---	0.012	---	0.012	---	0.012
Zinc	990	99	1170	91	4 U	---	---	---	---	---	---	---	---	---	---
Dissolved Metals (µg/L)															
Arsenic	1.9	0.5	2.4	0.7	0.4	360	190	360	190	360	190	360	190	360	190
Cadmium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	40.7	5.3	4.5	1.2	49.9	6.1	4.1	1.1	1.3	0.5
Copper	0.6 G	1.0 G	3.8 G	1.1 G	0.5 G	137.7	75.6	20.2	13.3	164.3	88.8	18.6	12.3	6.8	5
Lead	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	643.8	25.1	78.7	3.1	769.8	30	71.6	2.8	22.2	0.9
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	2.1	---	2.1	---	2.1	---	2.1	---	2.1	---
Zinc	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	750.3	685.1	133.6	122	879.6	803.3	124.1	113.3	50.4	46

Notes:

a Water quality criteria are for the dissolved fraction except for the chronic criteria for mercury which is based on the total fraction.

b Water quality criteria for cadmium, copper, lead, and zinc are hardness dependent. The hardness concentration measured at each station during the elutriate test (1-A = 920 mg/L, 1-B = 120 mg/L, 2-A = 1100 mg/L, 2-B = 110 mg/L, and Lake = 38 mg/L) was used to calculate the criteria at that station.

U Undetected at the detection limit shown.

G Estimate is greater than the value shown.

52 Single underline denotes exceedance of chronic criteria.

52 Solid block outline denotes exceedance of acute criteria.

52 Gray shading denotes detection limit is greater than chronic criteria.

Sediment Chemical Testing

Sediment chemical testing results are discussed below for PSDDA open-water disposal testing and upland disposal testing.

PSDDA Open-Water Disposal Testing

The PSDDA screening level criteria were not exceeded in any of the samples, with the exception of the mercury concentration at station 2-A (0.49 milligrams per kilogram [mg/kg]). Fluoranthene and bis(2-ethylhexyl)phthalate were the only organic contaminants detected in the samples.

Based on the sediment chemistry data collected for this study, it is likely that the middle basin sediment trap area of Capitol Lake would be re-ranked as low-moderate because the PSDDA maximum level (ML) criterion was not exceeded for any parameter in any sample. A full sediment characterization using a low-moderate ranking would be required before open-water disposal could be approved by PSDDA. Depending on concerns by PSDDA, this characterization may require the collection of four cores in each of the two dredge sectors and compositing the four cores into one sample per dredge sector for analysis of mercury only. If the PSDDA screening level (SL) criterion for mercury is exceeded in any sample, then additional sampling for biological testing may be needed before a decision can be made regarding the suitability of the sediments for open-water disposal.

Upland Disposal Testing

MTCA method A cleanup levels were not exceeded in any of the samples. Petroleum hydrocarbons and MTCA organic contaminants of concern were not detected in any of the samples. TCLP test results show that, with the exception of barium, metal concentrations at all sampling stations were below the laboratory detection limits. Barium concentrations at all stations were below the Thurston County high risk waste threshold level.

Sediments from the middle basin sediment trap of Capitol Lake would likely be classified by the Thurston County Health Department as an inert, nondangerous, and non-high risk waste material that would retain its physical and chemical structure under expected conditions of disposal. These sediments would likely require no additional testing for disposal at an approved upland location in Thurston County.

Elutriate Testing

Acute toxicity criteria were not exceeded in any of the samples. Chronic toxicity criteria were only exceeded for mercury at stations 1-A, 1-B, and 2-A. Although mercury was not detected in the lake water or at station 2-B, the detection limit for mercury (0.1 micrograms per liter [µg/L])

exceeds the chronic criterion (0.012 µg/L). Elutrite samples of lake water and for station 2-B would require analysis of mercury using a low-level method (i.e., EPA Method 1631) to determine whether mercury concentrations exceed the chronic criterion.

Total and dissolved metal concentrations were substantially higher at the southwesterly stations (1-A and 2-A) than at the northeasterly stations (1-B and 2-B). Total and dissolved metal concentrations at all stations were higher than the background lake water concentrations. Nitrate concentrations were similar among all stations and were slightly lower than the background lake water concentrations.

Conclusions

The monitoring results yield the following conclusions:

- Concentrations of PSDDA contaminants of concern were below the PSDDA screening level criteria, with the exception of mercury at station 2-A. PSDDA maximum level criteria were not exceeded at any station.
- Concentrations of MTCA contaminants of concern were below the MTCA method A cleanup levels at all sampling stations.
- TCLP metal concentrations were below the Thurston County high risk waste threshold levels at all stations.
- Elutriate test results indicate that only mercury concentrations may exceed water quality criteria during dredging operations.
- Because PSDDA maximum level criteria were not exceeded at any station, it is likely that the middle basin sediment trap area of Capitol Lake would be re-ranked as low-moderate by PSDDA. A full sediment characterization would be required at the low-moderate ranking before open-water disposal could be approved by PSDDA. A full sediment characterization would require additional sampling and chemical testing, and may require biological testing.
- It is likely that the sediments from the middle basin sediment trap of Capitol Lake would be classified by the Thurston County Health Department as an inert, nondangerous, and non-high risk waste material that could be disposed of at an approved upland location in Thurston County with no additional chemical testing.

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APPENDIX A

Data Validation Report

SEDIMENT DATA VALIDATION REPORT FOR THE CAPITOL LAKE 2000 ADAPTIVE MANAGEMENT PLAN

Introduction

Herrera Environmental Consultants, Inc. of Seattle, Washington collected five sediment samples (including sample 3A which is a field duplicate of sample 2B) on April 25, 2000 from Capitol Lake. Table 1 summarizes the samples collected and the analyses performed in accordance with the Capitol Lake 2000 Adaptive Management Plan Sediment Sampling and Analysis Plan and Quality Assurance Plan (QAP) (Herrera 2000). Analytical Resources, Inc. of Seattle, Washington performed all chemical analyses. Rosa Environmental & Geotechnical Laboratory of Seattle, Washington performed the elutriate preparations and physical analyses (i.e., grain size, total volatile solids, specific gravity, and Atterburg limits).

Table 1. Samples collected and analyses performed for the Capitol Lake 2000 Adaptive Management Plan.

Sample ID	Conven-tionals	Metals	VOA	SVOA	Pest/ PCB	TPH	TCLP	Elutriate
1A	X	X	X	X	X	X	X	X
1B	X	X	X	X	X	X	X	X
2A	X	X	X	X	X	X	X	X
2B	X	X	X	X	X	X	X	X
3A	X	X	X	X	X	X	X	X
Lake								X
Trip Blank			X					
Metals Wipe #1		X						
Metals Wipe #2		X						
Metals Wipe #3		X						
Organic Wipe #1				X				
Organic Wipe #2				X				

Conventionals:	Sediment total solids, total volatile solids, total organic carbon, sulfides, ammonia, grain size, specific gravity, and Atterberg limits
Metals:	Sediment total and dissolved PSDDA metals, including mercury
VOA:	Sediment volatile organics
SVOA:	Sediment semivolatile organics
Pest/PCB:	Sediment pesticides and polychlorinated biphenyls
TPH:	Sediment total petroleum hydrocarbon identification
TCLP:	Sediment toxicity characteristic leaching procedure metals analyses
Elutriate:	Water total and dissolved metals, nitrite+nitrate, and hardness

A quality assurance level 1 (QA1) review was conducted for Puget Sound Dredge Disposal Analysis (PSDDA) conventional and contaminant chemistry results of sediment analyses using the most recent guidelines available in PSDDA and Puget Sound Estuary Program (PSEP) documentation (PSDDA 1989, 1990, 1991a, 1991b, 1993, and 1994; PSEP 1986, 1989a, 1989b, 1996a, and 1996b). The QA1 review included evaluations of precision, accuracy, representativeness, and completeness of the analytical results. QA1 summary matrix forms, which summarize the quality assurance and quality control (QA/QC) review, were completed and are included as part of this report. These forms include evaluations of sample holding times, quality control sample results, analytical methods, and data format.

An EPA Level III review was conducted on the non-PSDDA analytical results. Results for total petroleum hydrocarbons (TPH), TCLP metals, elutriate testing, and water analyses (total and dissolved metals, hardness, and nitrate/nitrite) were evaluated for sample holding times, quality control sample results, and analytical methods. Criteria that were used to qualify the sample results were based on the QAP. Summary matrix forms for this QA/QC review were completed and are also included as part of this report.

Custody, Preservation, Holding Times, Data Format and Completeness

Sample custody was properly maintained from sample collection to receipt at the laboratory. All samples were received intact and were properly preserved. All samples were analyzed within the required holding times. The report is complete and contains results for all samples and tests requested on the chain-of-custody.

All PSDDA conventional and contaminate chemistry analytical results were reported in the proper format, with the following exceptions. Arsenic, antimony, and lead sediment results are reported to one significant figure when the result is less than 10 mg/kg. Detection limits are below PSDDA screening levels in all sediment samples.

Detection limits for all non-PSDDA analyses are below the QAP criteria, with the following exception. The mercury detection limit for water and elutriate samples is above the chronic criteria for fresh water (0.012 ug/L).

Assessment of Data Quality Objectives

Precision

Precision is a measure of the mutual agreement among individual measurements of the same property, under prescribed similar conditions. Precision is determined through analysis of matrix spike/matrix spike duplicates (MS/MSDs), laboratory duplicates, and field duplicate samples. Duplicate samples are evaluated for precision in terms of relative percent difference (RPD).

Relative percent difference is defined as the difference between the two duplicate results divided by the mean and expressed as a percent.

Precision of the conventional sediment data is acceptable. All RPD values for laboratory and field duplicates are below the PSDDA recommended control limit of 20 percent with the exception of sulfide, gravel, very coarse sand in the field duplicate. Sulfide was detected at 3.6 mg/kg in sample 2B and was undetected at less than 0.72 mg/kg in the field duplicate (sample 3A). Field duplicate RPD values for the gravel and very coarse sand fractions exceeded 20 percent, but these fractions comprised a small proportion of the sample (i.e., 0.5 and 0.4 percent, respectively) and did not vary more that 0.2 percent in the field duplicate. Although laboratory duplicates were not analyzed for total volatile solids and specific gravity, precision of these analyses is satisfactory because the field duplicate results are acceptable.

Precision of the metals sediment data is acceptable. One laboratory duplicate was analyzed for the full suite of metals including mercury. In addition, sample 3A is a field duplicate of sample 2B. All elements had relative percent difference values below the PSDDA recommended limit of 20 percent or within one reporting limit for values less than 5 times the reporting limit.

Precision of the organics sediment data is good. All indicators of precision (i.e., MS/MSDs and field duplicates) for the volatile organic, semivolatile organic, pesticide/PCB, and TPH data are within the appropriate limits (i.e., PSDDA limits for QA1 review and laboratory limits for EPA Level III review).

Precision of the TCLP metals data is acceptable. All laboratory and field duplicate RPD values are within laboratory control limits.

Precision of the elutriate metals and conventional water data is acceptable. All laboratory and field duplicate RPD values are within laboratory control limits. Sample LAKE was analyzed separately from the elutriate samples and duplicate results were not reported for metals analysis of this one sample.

Accuracy

Accuracy is the degree of agreement between a measurement and the accepted reference or true value. The level of accuracy is determined by examination of matrix spikes, matrix spike duplicates, laboratory control samples, method blanks, and field blanks. Method and field blanks are analyzed to identify compounds that could be introduced during the sampling or laboratory extraction or analysis phase (i.e., laboratory contaminants) and lead to inaccurate results. The matrix spike, matrix spike duplicate, and laboratory control sample recovery values were compared to the criteria set forth in the PSDDA documents or the QAP.

Accuracy of the conventional sediment data is acceptable. Laboratory control samples and matrix spikes were analyzed for each batch of samples, and a CRM was analyzed for total organic carbon to assess the accuracy of the analytical results. All laboratory control samples and matrix spike recovery values are within the PSDDA recommended limits of between 75 to

125 percent. The recovery of the TOC CRM is also acceptable. The method blanks are free of target analytes above the detection limit.

Accuracy of the metals sediment data is acceptable with the exception of the antimony results. A certified reference material (CRM) and matrix spike were analyzed for the full suite of metals including mercury. All CRM recovery values are within the PSDDA recommended limit of between 80 to 120 percent with the exception of antimony (77 percent). All matrix spike recovery values are within the PSDDA recommended limit of between 75 to 125 percent with the exception of antimony (63.6 percent). Antimony results in all sediment samples have been qualified G (detected values) or UE (undetected values) to denote the low bias. Although copper was detected in the method blank, accuracy of the copper data is not affected because the sediment sample results are greater than 5 times the method blank concentration. Copper and zinc were detected in each of the three metals wipe samples associated with the sediment samples. However, accuracy of the data set is not affected because conversion of the wipe concentrations to the equivalent sediment concentrations demonstrates that the wipe results are less than the sediment reporting limits, and are much less than the copper and zinc levels in the sediment samples.

Accuracy of the volatile organics sediment data is acceptable with the exception of the 1,2,4-trichlorobenzene results. All laboratory control sample percent recovery values are within the QAP limits. The MS and MSD recovery values for 1,2,4-trichlorobenzene (41.2 and 47.5 percent, respectively) are below the PSDDA recommended limit of greater than or equal to 50 percent. Because 1,2,4-trichlorobenzene was not detected in any of the samples, all 1,2,4-trichlorobenzene results for the volatile organics analyses have been qualified UE (estimate) to indicate that the detection limits are greater than the values shown. All surrogate recovery values are within PSDDA criteria. The method blanks are free of all target analytes. Although methylene chloride was detected in the trip blank, accuracy of data set is not affected because methylene chloride was not detected in the sediment samples. CRMs were not analyzed for volatile organics.

Accuracy of the semivolatile organic sediment data is acceptable with the exception of the pentachlorophenol results and selected analyte results associated with low surrogate recovery values. The MS and MSD recovery values for pentachlorophenol (14.2 percent and 31.6 percent, respectively), and the MSD recovery value for 1,4-dichlorobenzene (44.4 percent) are below the PSDDA recommended limit of greater than or equal to 50 percent. Because pentachlorophenol was not detected in any of the samples, all pentachlorophenol results have been qualified UE (estimate) to indicate that the detection limits are greater than the values shown. The 1,4-dichlorobenzene results for the semivolatile organic analyses were not qualified because the MSD is acceptable.

Sample surrogate recovery values for semivolatile organics are within PSDDA criteria with several exceptions. In all sediment samples, the recovery of the surrogate compound 1,2-dichlorobenzene-d4 is below the PSDDA recommended limit of greater than 50 percent. However, data qualifiers are not required unless two or more surrogates from the same fraction (acid or base/neutral) are out of limits. The acid and base/neutral analytes of sample 1A have been qualified G (detected values) or UE (undetected values) because 2 acid and 2 base/neutral

surrogate recovery values are below 50 percent. The base/neutral analytes of sample 2A have been qualified G (detected values) or UE (undetected values) because 2 base/neutral surrogate recovery values are below 50 percent (Table 2).

Table 2. Semivolatile organic analytes affected by low surrogate recovery.

Sample	Analyte qualified G or UE		QC Exceedance
1A	All Analytes		2 acid and 2 base/neutral surrogate recovery values below PSDDA criteria
2A	1,3-Dichlorobenzene	Phenanthrene	2 base/neutral surrogate recovery values below PSDDA criteria
	1,4-Dichlorobenzene	Anthracene	
	1,2-Dichlorobenzene	Di-n-butylphthalate	
	Benzyl alcohol	Fluoranthene	
	Hexachloroethane	Pyrene	
	1,2,4-Trichlorobenzene	Butylbenzylphthalate	
	Naphthalene	Benzo(a)anthracene	
	Hexachlorobutadiene	Bis(2-ethylhexyl)phthalate	
	2-methylnaphthalene	Chrysene	
	Dimethylphthalate	Di-n-octylphthalate	
	Acenaphthylene	Benzo(b)fluoranthene	
	Acenaphthene	Benzo(k)fluroanthene	
	Dibenzofuran	Benzo(a)pyrene	
	Diethylphthalate	Indeno(1,2,3-cd)pyrene	
	Fluorene	Dibenz(a,h)anthracene	
	N-nitrosodiphenylamine	Benzo(g,h,i)perylene	
	Hexachlorobenzene		

Percent recoveries of semivolatile organics in the laboratory control sample are within the QAP limits. All Sequim Bay Fortified Sediment CRM results are within the PSDDA criteria (within the 95 percent confidence interval). The semivolatile organics method blank is free of target analytes above the detection limit. Bis(2-ethylhexyl)phthalate was detected in one of two wipe samples (Organic Wipe #2). However, accuracy of the data set is not affected because conversion of the wipe concentrations to the equivalent sediment concentrations demonstrates that the wipe results are less than the sediment reporting limits.

Accuracy of the pesticide/PCB sediment data is acceptable. One MS/MSD, one laboratory control sample, and one CRM were analyzed for pesticides and PCBs. All laboratory control sample percent recovery values are within the QAP limits. All MS/MSD recovery values are within the PSDDA recommended limit of greater than 50 percent recovery. All Sequim Bay Fortified Sediment results are within the 95 percent confidence interval with one exception. The alpha chlordane result is above the 95 percent confidence interval. Data qualifiers are not recommended on the basis of CRM results alone. All surrogate recovery values are within PSDDA criteria. The method blank is free of target analytes above the detection limit.

Accuracy of the TPH sediment data is acceptable. One MS/MSD and one laboratory control sample were analyzed for TPH using HCID. All laboratory control sample and MS/MSD percent recovery values are within the QAP limits. All surrogate recovery values are within QAP criteria. The method blank is free of target analytes above the detection limit.

Accuracy of the TCLP metals data is acceptable. All matrix spike results are within the laboratory control limits. Barium was detected in the method blank at a level above the detection limit. Data qualifiers are not required and the accuracy of the data set is not affected because the barium concentration in the associated samples is greater than 5 times the method blank concentration.

Accuracy of the conventional elutriate and water data is acceptable. All matrix spike, CRM, and laboratory control sample results are within the laboratory control limits and the method blanks are free of target analytes.

Accuracy of the metals elutriate and water data is acceptable with the exception of the copper results for the elutriate samples. The copper matrix spike recovery for the elutriate sample analysis (71.6 percent) is below the laboratory control limits of between 75 and 125 percent. Copper in all elutriate water samples has been qualified G. Sample LAKE was analyzed separately from the elutriate samples and matrix spike results were not reported for metals analysis of this one sample. Laboratory control sample results for all metals elutriate and water analyses are within laboratory control limits. Although lead was detected (at the detection limit) in the total metals method blank for the elutriate sample analysis, no data were qualified and the accuracy of the data set is not affected because the associated sample concentrations are greater than 5 times the method blank concentration. All other metals method blanks are free of target analytes above the detection limit.

Accuracy of the metals wipe data is acceptable with the exception of the antimony results. Percent recovery of the antimony laboratory control sample (72.0 percent) is below the laboratory control limits of between 75 and 125 percent. Because antimony was not detected in any of the wipe samples, antimony results for all wipe samples have been qualified UE. Matrix spikes are not required for wipe matrixes. The method blank is free of target analytes above the detection limit.

Accuracy of the semivolatile organics wipe data is acceptable. All laboratory control sample results are within laboratory control limits. Matrix spikes are not required for wipe matrixes. The method blank is free of target analytes above the detection limit.

Representativeness

Representativeness is the extent to which the data reflect the actual contaminant levels present in the samples. Representativeness is assessed through method and field blanks, and proper preservation and handling. Method and field blank analyses allow for the detection of artifacts that may be reported as false positive results. Proper sample preservation and handling ensure that sample results reflect the actual sample concentrations.

The data are assumed to be representative because all samples were analyzed within the required holding times, the samples were properly preserved and handled, and the impact of method and field blank contamination is minimal.

Copper was detected in the sediment method blank, methylene chloride was detected in the volatile organics trip blank, lead was detected in the elutriate water method blank, and barium was detected in the TCLP metals method blank. No data were qualified due to method blank or trip blank contamination because either the associated samples are free of the blank contaminant or the associated sample concentrations are greater than 5 times the method blank concentration.

Bis(2-ethylhexyl)phthalate was detected in one of two semivolatile organics wipe samples, and copper and zinc were detected in all three metals wipe samples. The representativeness of the data set is not affected because the levels in the wipe blanks, when compared to the sample results, are below the detection limits.

Comparability

Comparability is a measure of how easily the data set can be compared and combined with other data sets. The data are assumed to be comparable because standard EPA methods were used to analyze the samples, the method QC criteria were generally met, and low detection limits were reported.

Completeness

Completeness is expressed as the ratio of valid results to the amount of data that is expected under normal conditions. Completeness is determined by assessing the number of samples for which valid results were obtained versus the number of samples that were submitted to the laboratory for analysis. Valid results are results that are determined to be usable during the data validation review process.

The 95 percent completeness goal of the QAP was met. The completeness of this data set is 100 percent because all of the samples were analyzed and all the results were determined to be valid.

Data Qualifiers

Data qualifiers used for validation of this data set are presented in Table 3. These qualifiers are based on requirements for the PSDDA Dredged Analysis Information System (DAIS) and as defined in PSEP (1996b).

Table 3. PSDDA DAIS Data Qualifiers

Qualifier	Definition[1]
B	Analyte detected in samples and in method blank
D	Diluted sample
E	Estimate
G	Estimate is greater than value shown
J	Estimate greater than SDL but less than CRDL
L	Value is less than the maximum shown
M	Does not meet EPA spectral criteria, but judged to be present
S	Determined through selected ion monitoring analysis
T	Chromatographic coelution
U	Undetected

[1] Data qualifiers are defined on the US Army Corps of Engineer DAIS data system. These qualifiers are assigned and attached by the DAIS system.

CRDL: Contract Required Detection Limit
DAIS: Dredged Analysis Information System
EPA: Environmental Protection Agency
PSDDA: Puget Sound Dredged Disposal Analysis
SDL: Sample Detection Limit

References

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PSEP. 1996b. Recommended quality assurance and quality control guidelines for the collection of environmental data in Puget Sound. Prepared for the U.S. Environmental Protection Agency Region X, and the Puget Sound Water Quality Authority, by the King County Water Pollution Control Division Environmental Laboratory.

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PSEP. 1989a. Recommended guidelines for measuring organic compounds in Puget Sound sediment and tissue samples. Prepared for the U.S. Environmental Protection Agency Region X, Office of Puget Sound, Puget Sound Estuary Program, and the U.S. Army Corps of Engineers, by PTI Environmental Services, Bellevue, WA.

PSEP. 1989b. Recommended guidelines for measuring metals in Puget Sound sediment and tissue samples. Prepared for the U.S. Environmental Protection Agency Region X, Office of Puget Sound, Puget Sound Estuary Program, and the U.S. Army Corps of Engineers, by PTI Environmental Services, Bellevue, WA.

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Attachment – Data Validation Summary

Sediment:

Characteristic	Conventionals	Metals	Volatile Organics
% Completeness Field Laboratory	100% 100%	100% 100%	100% 100%
Units & Significant Figures	Acceptable	As, Sb, Pb: 1 sig fig reported	Acceptable
Detection Limits	Acceptable	Acceptable	Acceptable
Holding Conditions & Times	Acceptable	Acceptable	Acceptable
Method Blanks	Acceptable	Acceptable (Cu in MB, no data qualified since samples > 5X the MB)	Acceptable ($MeCl_2$ in trip blank but not present in samples)
Certified Reference Material	Acceptable TOC: NBS #2704	ERA Lots 229 & 239 Sb Rec = 77%, G or UE Sb for all samples.	Not analyzed
Replicates	Acceptable (No TVS or SG lab dup, but field dup OK)	Acceptable	Acceptable (Sample 2B as MS/MSD)
Matrix Spikes	Acceptable	Antimony Rec = 64%, G or UE antimony for all samples	1,2,4-trichlorobenzene Rec < 50% in MS/MSD, UE 1,2,4-TCB for all samples
Field Duplicates	Acceptable (High RPD for sulfide, gravel, and very coarse sand, no data flagged)	Acceptable	Acceptable
Addition QC Parameters	Not analyzed	Metals wipes contain Cu & Zn, but no data qualified because wipes < 5X equivalent sediment concentrations.	LCS acceptable. Surrogates acceptable.

Sediment (continued):

QA1 Characteristic	Semivolatile Organics	Pesticides/PCBs	TPH
% Completeness: Field Laboratory	100% 100%	100% 100%	100% 100%
Units & Significant Figures	Acceptable	Acceptable	Acceptable
Detection Limits	Acceptable	Acceptable	Acceptable
Holding Conditions & Times	Acceptable	Acceptable	Acceptable
Method Blanks	Acceptable	Acceptable	Acceptable
Certified Reference Material	Acceptable (Sequim Bay Fortified Sediment)	Acceptable (Alpha chlordane results > 95% CI, no data qualified.)	Not analyzed
Replicates	Acceptable (sample 2B as MS/MSD)	Acceptable (sample 2B as MS/MSD)	Acceptable (sample 2B as MS/MSD)
Matrix Spikes	PCP MS and MSD Rec < 50%, G or UE PCP for all samples. 1,4-dichlorobenzene MS Rec < 50%, no data qualified since MSD is OK.	Acceptable (sample 2B as MS/MSD)	Acceptable (sample 2B as MS/MSD)
Field Duplicates	Acceptable	Acceptable	Acceptable
Addition QC Parameters	LCS is acceptable. Sample 1A: G or UE acid and B/N analytes because 2 surrogate Rec >50%. Sample 2A: G or UE B/N analytes only because 2 surrogate Rec >50%. Organic Wipe #2 contains bis(2-ethylhexyl)phthalate, no data qualified since <5X equivalent sediment RL	LCS is acceptable. Surrogates are acceptable.	LCS is acceptable. Surrogates are acceptable.

Lake Water:

Characteristic	Conventional Parameters	Metals
% Completeness: Field Laboratory	100% 100%	100% 100%
Units & Significant Figures	Acceptable	Acceptable
Detection Limits	Acceptable	Hg RL > 0.012 ug/L.
Holding Conditions & Times	Acceptable	Acceptable
Method Blanks	Acceptable	Acceptable
Certified Reference Material	Acceptable (SPEX #15-121, 99.8% R)	Not analyzed
Matrix Spike	Acceptable (MS on sample Lake)	Not analyzed
Sample Duplicate	Acceptable (Duplicate on sample Lake)	Not analyzed
Laboratory Control Sample	Not analyzed	Acceptable
Addition QC Parameters	Not analyzed	Not analyzed

Elutriate Water

Characteristic	Conventional Parameters	Metals
% Completeness: Field Laboratory	100% 100%	100% 100%
Units & Significant Figures	Acceptable	Acceptable
Detection Limits	Acceptable	Hg RL > 0.012 ug/L.
Holding Conditions & Times	Acceptable	Acceptable
Method Blanks	Acceptable	Acceptable (Pb detected in MB, no data qualified because samples >5X the MB)
Certified Reference Material	Acceptable (SPEX #15-121, 99.8% R)	Not analyzed
Matrix Spike	Acceptable MS on sample 1A.	Cu MS %R = 71.6, G or UE Cu in all elutriate waters.
Sample Duplicate	Acceptable Duplicate on sample 1A.	Acceptable
Laboratory Control Sample	NA (See CRM)	Acceptable
Field Duplicates	Acceptable	Acceptable
Addition QC Parameters	Not analyzed	Not analyzed

TCLP:

Characteristic	Metals
% Completeness: Field Laboratory	100% 100%
Units & Significant Figures	Acceptable
Detection Limits	Acceptable
Holding Conditions & Times	Acceptable
Method Blanks	Acceptable (Ba in MB, no data qualified because samples >5X the MB)
Certified Reference Material	Not analyzed
Matrix Spike	Acceptable (Matrix spike on sample 2B)
Sample Duplicate	Acceptable (Duplicate on sample 2B)
Laboratory Control Sample	Not analyzed
Field Duplicates	Acceptable
Addition QC Parameters	Not analyzed

Wipes:

QA1 Characteristic	Metals	Semivolatile Organic Chemicals
% Completeness: Field Laboratory	100% 100%	100% 100%
Units & Significant Figures	Acceptable	Acceptable
Detection Limits	No QAP RLs, RLs are reasonable.	No QAP RLs, RLs are reasonable.
Holding Conditions & Times	Acceptable	Acceptable
Method Blanks	Acceptable	Acceptable
Certified Reference Material	Not applicable	Not applicable
MS/MSD or MS/Duplicate	Not analyzed	Not analyzed
Laboratory Control Sample	Sb Rec = 72.0%, UE Sb in all wipes.	Acceptable
Field Duplicates	Not analyzed	Not analyzed
Addition QC Parameters	Not analyzed	Surrogates acceptable.

APPENDIX B

Field Observations

Table B-1. Physical characteristics of sediment cores collected in Capitol Lake, April 2000.

Core	Date	Time	Core Penetration (in)	Core Profile (in)	Sediment Characteristics
1-A-1	4/25/00	1155	18.5	0 to 8	Light brown silty organic material, high water content, some red worms; no odor, vegetation, debris, or sheen.
				8 to 18.5	Dark gray silty sand; no odor, vegetation, organisms, debris, or sheen.
1-A-2	4/25/00	1205	31	10 to 0	Overlying water.
				0 to 9	Light brown silty organic material, high water content, some red worms; no odor, vegetation, debris, or sheen.
				9 to 15	Dark gray organic material with silts and clays, high water content.
				15 to 26	Dark gray silty sands; no odor, vegetation, organisms, debris, or sheen.
				26 to 31	Dark gray silts and clays, low water content, very fine material, highly plastic; no odor, vegetation, organisms, debris, or sheen.
1-B-1	4/25/00	1030	24.5	0 to 6	Olive gray inorganic silts and fine sands; no odor, vegetation, organisms, debris, or sheen.
				6 to 24.5	Olive gray silty gravels, gravels-sand-silt mixtures; no odor, vegetation, organisms, debris, or sheen.
1-B-2	4/25/00	1050	22.5	0 to 0.5	Olive gray inorganic silts and fine sands; no odor, vegetation, organisms, debris, or sheen.
				0.5 to 18	Olive gray silty sands; no odor, vegetation, organisms, debris, or sheen.
				18 to 22.5	Olive gray silty gravels, gravels-sand-silt mixtures; no odor, vegetation, organisms, debris, or sheen
2-A-1	4/25/00	1550	24.5	20 to 0	Overlying water.
				0 to 3	Light brown organic material with plant stems; no odor, organisms, or sheen
				3 to 10	Dark gray organic material with plant stems; no odor, organisms, or sheen
				10 to 20	Dark gray silty sand; no odor, vegetation, organisms, debris, or sheen
				20 to 24.5	Dark gray inorganic silts; no odor, vegetation, organisms, debris, or sheen

Table B-1. Continued.

Core	Date	Time	Core Penetration (in)	Core Profile (in)	Sediment Characteristics
2-A-2	4/25/00	1600	27	18 to 0	Overlying water.
				0 to 3	Light brown organic material with plant stems and light colored wood bits; no odor, organisms, or sheen
				3 to 10	Dark gray organic sediment with plant stems and light colored wood bits; no odor, organisms, or sheen
				10 to 22	Dark gray silty sand; no odor, vegetation, organisms, debris, or sheen
				22 to 27	Dark gray inorganic silts; no odor, vegetation, organisms, debris, or sheen
2-B-1	4/25/00	1415	31	11 to 0	Overlying water.
				0 to 3	Light gray organic material with plant pieces and other vegetative debris; a few benthic organism casings noted; no odor, or sheen
				3 to 27	Light gray to olive gray silty sand with a few benthic organism casings noted; no odor, vegetation, or sheen.
				27 to 28	Black layer of leaf and wood debris
				28 to 31	Olive gray silty sand with a few benthic organism casings noted; no odor, vegetation, or sheen.
2-B-2	4/25/00	1420	31	12 to 0	Overlying water.
				0 to 5	Light gray organic material with plant pieces and other vegetative debris; no odor, organisms, or sheen
				5 to 28	Olive gray silty sand; no odor, organisms, vegetation, or sheen.
				28 to 29	Black layer of leaf and wood debris
				29 to 31	Olive gray silty sand; no odor, organisms, vegetation, or sheen.
2-B-3	4/25/00	1430	24	18 to 0	Overlying water.
				0 to 2	Light gray organic material with plant pieces and other vegetative debris; no odor, organisms, or sheen
				2 to 18	Olive gray silty sand; no odor, organisms, vegetation, or sheen.
				18 to 19	Black layer of leaf and wood debris
				19 to 24	Olive gray silty sand; no odor, organisms, vegetation, or sheen.

Table B-1. Continued.

Core	Date	Time	Core Penetration (in)	Core Profile (in)	Sediment Characteristics
2-B-4	4/25/00	1445	30	12 to 0	Overlying water
				0 to 3	Light gray organic material with plant pieces and other vegetative debris; no odor, organisms, or sheen
				3 to 26	Olive gray silty sand; no odor, organisms, vegetation, or sheen.
				26 to 27	Black layer of wood debris
				27 to 30	Olive gray silty sand; no odor, organisms, vegetation, or sheen.
2-B-5	4/25/00	1455	29	12 to 0	Overlying water
				0 to 2	Light gray organic material with plant pieces and other vegetative debris; no odor, organisms, or sheen
				2 to 29	Olive gray silty sand; no odor, organisms, vegetation, or sheen.

APPENDIX C

Analytical Resources Inc. Laboratory Report

ORGANICS ANALYSIS DATA SHEET
Pesticide/PCB by GC/ECD

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31SB
LIMS ID: 00-6161
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized: CA
Reported: 05/11/00 SMA

LABORATORY CONTROL SAMPLE
Date extracted: 05/03/00

CONSTITUENT	SPIKE FOUND	SPIKE ADDED	% RECOVERY
gamma-BHC (Lindane)	8.74	10.0	87.4%
Heptachlor	8.10	10.0	81.0%
Aldrin	7.62	10.0	76.2%
Dieldrin	17.4	20.0	87.0%
4,4'-DDT	19.8	20.0	99.0%

Spike Blank Surrogate Recovery

Decachlorobiphenyl	85.8%
Tetrachlorometaxylene	91.2%

Values reported in ug/kg

ORGANICS ANALYSIS DATA SHEET
Pesticide/PCB by GC/ECD

ANALYTICAL RESOURCES INCORPORATED

Sample No: 2B
Lab Sample ID: B031I
QC Report No: B031-Herrera Environmental Consultant
LIMS ID: 00-6164
Project: Capitol Lake
Matrix: Sediment
1384-4
Date Received: 04/26/00

Data Release Authorized: SLH
Reported: 05/11/00 SLH

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 05/03/00
Date analyzed: 05/10/00

CONSTITUENT	SAMPLE VALUE	SPIKE FOUND	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE					
gamma-BHC (Lindane)	< 0.92	7.18	9.21	77.9%	
Heptachlor	< 0.92	6.65	9.21	72.2%	
Aldrin	< 0.92	5.69	9.21	61.8%	
Dieldrin	< 1.84	13.3	18.4	72.2%	
4,4'-DDT	< 1.84	17.1	18.4	92.8%	
MATRIX SPIKE DUPLICATE					
gamma-BHC (Lindane)	< 0.92	7.83	9.21	85.0%	8.7%
Heptachlor	< 0.92	7.24	9.21	78.6%	8.5%
Aldrin	< 0.92	5.86	9.21	63.6%	2.9%
Dieldrin	< 1.84	14.8	18.4	80.3%	11.0%
4,4'-DDT	< 1.84	18.8	18.4	102%	9.4%

Values reported in ug/kg-dry-weight

TOTAL PETROLEUM HYDROCARBONS
WA HCID Method by GC/FID

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Matrix: Sediment Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized: CH
Reported: 04/30/00 4/30/00

Lab ID	Client Sample ID	Date Analyzed	Dilution Factor	Gas Range	Diesel Range	Oil Range	Surrogate Recovery
00-6156-0429MB	Method Blank	04/29/00	1:1	20 U	50 U	100 U	92.0%
00-6156-BO31A	1A(HCID)	04/29/00	1:1	20 U	50 U	100 U	99.0%
00-6157-BO31B	1B(HCID)	04/29/00	1:1	20 U	50 U	100 U	102%
00-6158-BO31C	2A(HCID)	04/29/00	1:1	20 U	50 U	100 U	95.0%
00-6159-BO31D	2B(HCID)	04/29/00	1:1	20 U	50 U	100 U	104%
00-6160-BO31E	3A(HCID)	04/29/00	1:1	20 U	50 U	100 U	110%

Values reported in ppm (mg/kg) on a dry weight basis.

Surrogate is Methyl Arachidate.
Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

Data Qualifiers

U	Compound not detected at the given detection limit.
X	Value detected above linear range of instrument. Dilution required.
J	Indicates an estimated value below the calculated detection limit.
S	No value reported due to saturation of the detector. Dilution required.
E	Indicates a value above the linear range of the detector. Dilution required.
D	Indicates the surrogate was not detected because of dilution of the extract.
C	Indicates a probable value which cannot be confirmed due to matrix interference.
NR	Indicates no recovery due to matrix interference and/or dilution.

FORM-1 HCID

TOTAL PETROLEUM HYDROCARBONS
WA HCID Method by GC/FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31SB
LIMS ID: 00-6156
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized: CH
Reported: 04/30/00 4/30/00

LABORATORY CONTROL SAMPLE RECOVERY REPORT
Date extracted: 04/26/00
Date analyzed: 04/29/00

CONSTITUENT	SPIKE VALUE	SPIKE ADDED	% RECOVERY
LABORATORY CONTROL SAMPLE			
Diesel Range	410	500	82.0%

HCID Surrogate Recovery

Spike Blank	Methylarachidate	78.0%

Values reported in parts per million (mg/kg)

HCID SPIKE CONTROL LIMITS

Percent Recovery 50-150%
Duplicate RPD <50%

Advisory QA Limits

TOTAL PETROLEUM HYDROCARBONS
WA HCID Method by GC/FID

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31D
LIMS ID: 00-6159
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized: CH
Reported: 04/30/00 5/5/4

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 04/26/00
Date analyzed: 04/29/00

CONSTITUENT		SAMPLE VALUE	SPIKE VALUE	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE						
Diesel Range	<	50.0	573	645	88.8%	
MATRIX SPIKE DUPLICATE						
Diesel Range	<	50.0	657	644	102%	13.8%

HCID Surrogate Recovery

Matrix Spike	Methylarachidate	80.0%
MS Duplicate	Methylarachidate	119%

Values reported in (ppm) mg/kg-dry

HCID SPIKE CONTROL LIMITS

Percent Recovery 50-150%
Duplicate RPD <50%

Advisory QA Limits

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 1A

Lab Sample ID: BO31F
LIMS ID: 00-6161
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: 55.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	4	4 U
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	4	4 U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.2	0.3
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.4	24.3
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.2	29.4
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	2	8
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.02	0.04
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.9	22.0
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.3	0.3 U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.5	46.8

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 1B

Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: 83.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	3	3
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	3	3 U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.1	0.1
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.3	15.5
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.1	12.5
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	1	3
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.01	0.01 U
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.6	18.7
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.2	0.2 U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.4	31.8

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 2A

Lab Sample ID: B031H
LIMS ID: 00-6163
Matrix: Sediment

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: 53.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	5	7	
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	5	5	U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.2	0.3	
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.5	26.8	
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.2	38.3	
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	2	10	
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.02	0.49	
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.9	24.8	
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.3	0.3	U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.6	56.7	

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 2B

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: 72.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	3	4
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	3	3 U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.1	0.1 U
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.3	18.4
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.1	15.2
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	1	4
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.01	0.01
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.7	20.2
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.2	0.2 U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.4	34.4

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 3A

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: 73.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	3	5
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	3	3 U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.1	0.1
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.3	19.8
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.1	15.4
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	1	4
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.01	0.02
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.7	19.6
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.2	0.2 U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.4	34.8

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET **Sample No: Method Blank**
TOTAL METALS

Lab Sample ID: BO31MB
LIMS ID: 00-6164
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/12/00

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry
3050	05/04/00	6010	05/10/00	7440-36-0	Antimony	2	2 U
3050	05/04/00	6010	05/10/00	7440-38-2	Arsenic	2	2 U
3050	05/04/00	6010	05/10/00	7440-43-9	Cadmium	0.1	0.1 U
3050	05/04/00	6010	05/10/00	7440-47-3	Chromium	0.2	0.2 U
3050	05/04/00	6010	05/10/00	7440-50-8	Copper	0.1	0.1
3050	05/04/00	6010	05/10/00	7439-92-1	Lead	1	1 U
CLP	05/08/00	7471	05/09/00	7439-97-6	Mercury	0.01	0.01 U
3050	05/04/00	6010	05/10/00	7440-02-0	Nickel	0.5	0.5 U
3050	05/04/00	6010	05/10/00	7440-22-4	Silver	0.2	0.2 U
3050	05/04/00	6010	05/10/00	7440-66-6	Zinc	0.3	0.3 U

U Analyte undetected at given RL

RL Reporting Limit

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

Sample No: 2B
QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample mg/kg-dry	Spike mg/kg-dry	Spike Added	% Recovery	Q
Antimony	6010	4	109	165	63.6%	N
Arsenic	6010	3 U	317	330	96.1%	
Cadmium	6010	0.1 U	12.8	13.2	97.0%	
Chromium	6010	18.4	48.8	33.0	92.1%	
Copper	6010	15.2	27.5	13.2	93.2%	
Lead	6010	4	124	132	90.9%	
Mercury	7471	0.01	0.11	0.13	76.9%	
Nickel	6010	20.2	79.5	66.1	89.7%	
Silver	6010	0.2 U	29.9	33.0	90.6%	
Zinc	6010	34.4	94.7	66.1	91.2%	

'Q' codes:
N = control limit not met
E = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

ANALYTICAL RESOURCES INCORPORATED

INORGANIC ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 2B
Lab Sample ID: BO31I
QC Report No: BO31-Herrera Environmental Consultant
LIMS ID: 00-6164
Project: Capitol Lake
Matrix: Sediment
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample mg/kg-dry	Duplicate mg/kg-dry	RPD	Control Limit	Q
Antimony	6010	4	5	22.2%	+/- 3	L
Arsenic	6010	3 U	3 U	0.0%	+/- 3	L
Cadmium	6010	0.1 U	0.1	0.0%	+/- 0.1	L
Chromium	6010	18.4	17.6	4.4%	+/- 20 %	
Copper	6010	15.2	14.7	3.3%	+/- 20 %	
Lead	6010	4	4	0.0%	+/- 1	L
Mercury	7471	0.01	0.01	0.0%	+/- 0.01	L
Nickel	6010	20.2	19.2	5.1%	+/- 20 %	
Silver	6010	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	6010	34.4	32.3	6.3%	+/- 20 %	

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

INORGANICS ANALYSIS DATA SHEET

Sample No: STD REFERENCE
ERA Lots No 229 and 239

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31-SRM
LIMS ID: 00-6164
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/12/00

Analyte	mg/kg-dry	Certified Value	Advisory Range
Antimony	20.5	26.6	3.49-49.6
Arsenic	172	163	102-225
Cadmium	110	114	84.9-142
Chromium	162	175	121-229
Copper	81.5	91.0	64.6-117
Lead	63.9	66.0	44.7-87.3
Mercury	1.57	1.75	0.951-2.56
Nickel	60.3	68.3	38.1-98.6
Silver	55.3	57.2	40.8-73.5
Zinc	182	190	144-236

ERA Lot 229 used for CVA, GFA, and ICP-MS. ERA Lot 239 used for ICP.

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET **Sample No: Metals Wipe #1**
TOTAL METALS

Lab Sample ID: BO42C
LIMS ID: 00-6279
Matrix: Wipe

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Data Release Authorized:
Reported: 05/18/00

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/sample
6010	05/02/00	6010	05/10/00	7440-36-0	Antimony	10	10 U
6010	05/02/00	6010	05/10/00	7440-38-2	Arsenic	10	10 U
6010	05/02/00	6010	05/10/00	7440-43-9	Cadmium	0.4	0.4 U
6010	05/02/00	6010	05/10/00	7440-47-3	Chromium	1	1 U
6010	05/02/00	6010	05/10/00	7440-50-8	Copper	0.4	0.9
6010	05/02/00	6010	05/10/00	7439-92-1	Lead	4	4 U
7471	05/03/00	7471	05/04/00	7439-97-6	Mercury	0.02	0.02 U
6010	05/02/00	6010	05/10/00	7440-02-0	Nickel	2	2 U
6010	05/02/00	6010	05/10/00	7440-22-4	Silver	0.6	0.6 U
6010	05/02/00	6010	05/10/00	7440-66-6	Zinc	1	10

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Metals Wipe #2

Lab Sample ID: BO42D
LIMS ID: 00-6280
Matrix: Wipe

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Data Release Authorized:
Reported: 05/18/00

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/sample
6010	05/02/00	6010	05/10/00	7440-36-0	Antimony	10	10 U
6010	05/02/00	6010	05/10/00	7440-38-2	Arsenic	10	10 U
6010	05/02/00	6010	05/10/00	7440-43-9	Cadmium	0.4	0.4 U
6010	05/02/00	6010	05/10/00	7440-47-3	Chromium	1	1 U
6010	05/02/00	6010	05/10/00	7440-50-8	Copper	0.4	0.7
6010	05/02/00	6010	05/10/00	7439-92-1	Lead	4	4 U
7471	05/03/00	7471	05/04/00	7439-97-6	Mercury	0.02	0.02 U
6010	05/02/00	6010	05/10/00	7440-02-0	Nickel	2	2 U
6010	05/02/00	6010	05/10/00	7440-22-4	Silver	0.6	0.6 U
6010	05/02/00	6010	05/10/00	7440-66-6	Zinc	1	11

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Metals Wipe #3

Lab Sample ID: BO42E
LIMS ID: 00-6281
Matrix: Wipe

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Data Release Authorized:
Reported: 05/18/00

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/sample
6010	05/02/00	6010	05/10/00	7440-36-0	Antimony	10	10 U
6010	05/02/00	6010	05/10/00	7440-38-2	Arsenic	10	10 U
6010	05/02/00	6010	05/10/00	7440-43-9	Cadmium	0.4	0.4 U
6010	05/02/00	6010	05/10/00	7440-47-3	Chromium	1	1 U
6010	05/02/00	6010	05/10/00	7440-50-8	Copper	0.4	0.6
6010	05/02/00	6010	05/10/00	7439-92-1	Lead	4	4 U
7471	05/03/00	7471	05/04/00	7439-97-6	Mercury	0.02	0.02 U
6010	05/02/00	6010	05/10/00	7440-02-0	Nickel	2	2 U
6010	05/02/00	6010	05/10/00	7440-22-4	Silver	0.6	0.6 U
6010	05/02/00	6010	05/10/00	7440-66-6	Zinc	1	19

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Method Blank

Lab Sample ID: BO42MB
LIMS ID: 00-6279
Matrix: Wipe

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/18/00

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/sample
6010	05/02/00	6010	05/10/00	7440-36-0	Antimony	10	10 U
6010	05/02/00	6010	05/10/00	7440-38-2	Arsenic	10	10 U
6010	05/02/00	6010	05/10/00	7440-43-9	Cadmium	0.4	0.4 U
6010	05/02/00	6010	05/10/00	7440-47-3	Chromium	1	1 U
6010	05/02/00	6010	05/10/00	7440-50-8	Copper	0.4	0.4 U
6010	05/02/00	6010	05/10/00	7439-92-1	Lead	4	4 U
7470	05/03/00	7470	05/04/00	7439-97-6	Mercury	0.02	0.02 U
6010	05/02/00	6010	05/10/00	7440-02-0	Nickel	2	2 U
6010	05/02/00	6010	05/10/00	7440-22-4	Silver	0.6	0.6 U
6010	05/02/00	6010	05/10/00	7440-66-6	Zinc	1	1 U

U Analyte undetected at given RL

RL Reporting Limit

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: Metals Wipe #1
Lab Sample ID: BO42LCS
QC Report No: BO42-Herrera Environmental Consultant
LIMS ID: 00-6279
Project: Capitol Lake
Matrix: Wipe
1384-4

Data Release Authorized:
Reported: 05/18/00

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/sample	Spike Added	% Recovery	Q
Antimony	360	500	72.0%	N
Arsenic	490	500	98.0%	
Cadmium	23.1	20.0	116%	
Chromium	49	50	98.0%	
Copper	19.0	20.0	95.0%	
Lead	201	200	100%	
Mercury	0.37	0.40	92.5%	
Nickel	104	100	104%	
Silver	49.7	50.0	99.4%	
Zinc	107	100	107%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 1A
TCLP METALS

Lab Sample ID: B031F
LIMS ID: 00-6161
Matrix: Sediment

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-39-3	Barium	0.02	0.17
1311	05/03/00	6010	05/10/00	7440-43-9	Cadmium	0.01	0.01 U
1311	05/03/00	6010	05/10/00	7440-47-3	Chromium	0.02	0.02 U
1311	05/03/00	6010	05/10/00	7439-92-1	Lead	0.1	0.1 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/10/00	7782-49-2	Selenium	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-22-4	Silver	0.02	0.02 U

U Analyte undetected at given RL

RL Reporting Limits

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 1B
TCLP METALS

Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-39-3	Barium	0.02	0.15
1311	05/03/00	6010	05/10/00	7440-43-9	Cadmium	0.01	0.01 U
1311	05/03/00	6010	05/10/00	7440-47-3	Chromium	0.02	0.02 U
1311	05/03/00	6010	05/10/00	7439-92-1	Lead	0.1	0.1 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/10/00	7782-49-2	Selenium	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-22-4	Silver	0.02	0.02 U

U Analyte undetected at given RL

RL Reporting Limits

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 2A
TCLP METALS

Lab Sample ID: B031H
LIMS ID: 00-6163
Matrix: Sediment

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-39-3	Barium	0.02	0.18
1311	05/03/00	6010	05/10/00	7440-43-9	Cadmium	0.01	0.01 U
1311	05/03/00	6010	05/10/00	7440-47-3	Chromium	0.02	0.02 U
1311	05/03/00	6010	05/10/00	7439-92-1	Lead	0.1	0.1 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/10/00	7782-49-2	Selenium	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-22-4	Silver	0.02	0.02 U

U Analyte undetected at given RL

RL Reporting Limits

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 2B
TCLP METALS

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-39-3	Barium	0.02	0.15
1311	05/03/00	6010	05/10/00	7440-43-9	Cadmium	0.01	0.01 U
1311	05/03/00	6010	05/10/00	7440-47-3	Chromium	0.02	0.02 U
1311	05/03/00	6010	05/10/00	7439-92-1	Lead	0.1	0.1 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/10/00	7782-49-2	Selenium	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-22-4	Silver	0.02	0.02 U

U Analyte undetected at given RL

RL Reporting Limits

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 3A
TCLP METALS

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-39-3	Barium	0.02	0.15
1311	05/03/00	6010	05/10/00	7440-43-9	Cadmium	0.01	0.01 U
1311	05/03/00	6010	05/10/00	7440-47-3	Chromium	0.02	0.02 U
1311	05/03/00	6010	05/10/00	7439-92-1	Lead	0.1	0.1 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/10/00	7782-49-2	Selenium	0.2	0.2 U
1311	05/03/00	6010	05/10/00	7440-22-4	Silver	0.02	0.02 U

U Analyte undetected at given RL

RL Reporting Limits

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET **Sample No:** Method Blank
TCLP METALS

Lab Sample ID: BO31MB
LIMS ID: 00-6164
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/15/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
1311	05/03/00	6010	05/11/00	7440-38-2	Arsenic	0.05	0.05 U
1311	05/03/00	6010	05/11/00	7440-39-3	Barium	0.003	0.004
1311	05/03/00	6010	05/11/00	7440-43-9	Cadmium	0.002	0.002 U
1311	05/03/00	6010	05/11/00	7440-47-3	Chromium	0.005	0.005 U
1311	05/03/00	6010	05/11/00	7439-92-1	Lead	0.02	0.02 U
1311	05/04/00	7470	05/04/00	7439-97-6	Mercury	0.0001	0.0001 U
1311	05/03/00	6010	05/11/00	7782-49-2	Selenium	0.05	0.05 U
1311	05/03/00	6010	05/11/00	7440-22-4	Silver	0.003	0.003 U

U Analyte undetected at given RL

RL Reporting Limits

INORGANICS ANALYSIS DATA SHEET
TCLP METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 2B
Lab Sample ID: BO31I
QC Report No: BO31-Herrera Environmental Consultant
LIMS ID: 00-6164
Project: Capitol Lake
Matrix: Sediment
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Sample mg/L	Spike mg/L	Spike Added	% Recovery	Q
Arsenic	0.2 U	25.8	25.0	103%	
Barium	0.15	24.1	25.0	95.8%	
Cadmium	0.01 U	5.20	5.00	104%	
Chromium	0.02 U	23.6	25.0	94.4%	
Lead	0.1 U	23.7	25.0	94.8%	
Mercury	0.0001 U	0.0008	0.0010	80.0%	
Selenium	0.2 U	5.4	5.0	108%	
Silver	0.02 U	4.82	5.00	96.4%	

'Q' codes:
N = control limit not met
H = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS

Sample No: 2B
Lab Sample ID: B031I
QC Report No: B031-Herrera Environmental Consultant
LIMS ID: 00-6164
Project: Capitol Lake
Matrix: Sediment
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Sample mg/L	Duplicate mg/L	RPD	Control Limit	Q
Arsenic	0.2 U	0.2 U	0.0%	+/- 0.2	L
Barium	0.15	0.15	0.0%	+/- 20 %	
Cadmium	0.01 U	0.01 U	0.0%	+/- 0.01	L
Chromium	0.02 U	0.02 U	0.0%	+/- 0.02	L
Lead	0.1 U	0.1 U	0.0%	+/- 0.1	L
Mercury	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L
Selenium	0.2 U	0.2 U	0.0%	+/- 0.2	L
Silver	0.02 U	0.02 U	0.0%	+/- 0.02	L

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 1A

Lab Sample ID: B031F
LIMS ID: 00-6161
Matrix: Sediment

Data Release Authorized: MB
Reported: 05/15/00 Dr. M.A. Perkins

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	04/27/00 04270#1	EPA 160.3 SM 2540 B		0.01	Percent	52.2
Preserved Total Solids	04/26/00 04260#1	EPA 160.3 SM 2540 B		0.01	Percent	62.4
N-Ammonia	05/01/00 05010#1	EPA 350.1 4500 NH3 H	10	3.8	mg-N/kg	98
Sulfide	05/01/00 05010#1	EPA 376.2 SM4500S2-D	5.0	5.9	mg/kg	93
Total Organic Carbon	04/28/00 04280#1	Plumb,1981		0.0050	Percent	2.3

Ammonia determined on 2N KCl extracts.

RL Analytical reporting limit
U Undetected at reported detection limit
B Analyte found in method blank above detection

Report for B031 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 1B

Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized: MP
Reported: 05/15/00 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	04/27/00 04270#1	EPA 160.3 SM 2540 B		0.01	Percent	80.0
Preserved Total Solids	04/26/00 04260#1	EPA 160.3 SM 2540 B		0.01	Percent	78.0
N-Ammonia	05/01/00 05010#1	EPA 350.1 4500 NH3 H		0.25	mg-N/kg	6.3
Sulfide	05/01/00 05010#1	EPA 376.2 SM4500S2-D		0.65	mg/kg	1.2
Total Organic Carbon	04/28/00 04280#1	Plumb,1981		0.0050	Percent	0.30

Ammonia determined on 2N KCl extracts.

RL Analytical reporting limit
U Undetected at reported detection limit
B Analyte found in method blank above detection

Report for BO31 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 2A

Lab Sample ID: BO31H
LIMS ID: 00-6163
Matrix: Sediment

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/15/00 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	04/27/00 04270#1	EPA 160.3 SM 2540 B		0.01	Percent	52.3
Preserved Total Solids	04/26/00 04260#1	EPA 160.3 SM 2540 B		0.01	Percent	58.0
N-Ammonia	05/01/00 05010#1	EPA 350.1 450C NH3 H	10	3.8	mg-N/kg	86
Sulfide	05/01/00 05010#1	EPA 376.2 SM4500S2-D	30	29	mg/kg	190
Total Organic Carbon	04/28/00 04280#1	Plumb,1981		0.0050	Percent	2.0

Ammonia determined on 2N KCl extracts.

RL Analytical reporting limit
U Undetected at reported detection limit
B Analyte found in method blank above detection

Report for BO31 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 2B

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

Data Release Authorized: MB
Reported: 05/15/00 Dr. M.A. Perkins

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	04/27/00 04270#1	EPA 160.3 SM 2540 B		0.01	Percent	71.1
Preserved Total Solids	04/26/00 04260#1	EPA 160.3 SM 2540 B		0.01	Percent	73.6
N-Ammonia	05/01/00 05010#1	EPA 350.1 4500 NH3 H	10	2.8	mg-N/kg	36
Sulfide	05/01/00 05010#1	EPA 376.2 SM4500S2-D		0.71	mg/kg	3.6
Total Organic Carbon	04/28/00 04280#1	Plumb,1981		0.0050	Percent	0.81

Ammonia determined on 2N KCl extracts.

RL Analytical reporting limit
U Undetected at reported detection limit
B Analyte found in method blank above detection

Report for BO31 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 3A

Lab Sample ID: B031J
LIMS ID: 00-6165
Matrix: Sediment

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized: MP
Reported: 05/15/00 Dr. M.A. Perkins

Analyte	Analysis Date/Batch	Method	Dilution Factor	RL	Units	Result
Total Solids	04/27/00 04270#1	EPA 160.3 SM 2540 B		0.01	Percent	70.6
Preserved Total Solids	04/26/00 04260#1	EPA 160.3 SM 2540 B		0.01	Percent	73.8
N-Ammonia	05/01/00 05010#1	EPA 350.1 4500 NH3 H	10	2.8	mg-N/kg	34
Sulfide	05/01/00 05010#1	EPA 376.2 SM4500S2-D		0.72	mg/kg	< 0.72 U
Total Organic Carbon	04/28/00 04280#1	Plumb,1981		0.0050	Percent	0.92

Ammonia determined on 2N KCl extracts.

RL Analytical reporting limit
U Undetected at reported detection limit
B Analyte found in method blank above detection

Report for B031 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: B031-Herrera Environmental Consultant
Matrix: Sediment
Project: Capitol Lake
1384-4
Date Received: NA

Data Release Authorized:
Reported: 05/15/00 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result
Method Blank 04/27/00 04270#1	Total Solids	mg residue	< 1.00 U
Method Blank 04/26/00 04260#1	Preserved Total Solids	mg residue	< 1.00 U
Method Blank 05/01/00 05010#1	N-Ammonia	mg-N/L	< 0.020 U
Method Blank 05/01/00 05010#1	Sulfide	mg/L	< 0.05 U
Method Blank 04/28/00 04280#1	Total Organic Carbon	Percent	<0.0050 U

ANALYTICAL RESOURCES INCORPORATED

QA Report - Laboratory Control Samples

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: NA

Data Release Authorized:
Reported: 05/15/00 Dr. M.A. Perkins

LABORATORY CONTROL SAMPLES
CONVENTIONALS

Constituent	Units	Measured Value	True Value	Recovery
Laboratory Control Sample				
N-Ammonia	mg-N/L	10.6	10.0	106%
Date analyzed: 05/01/00 Batch ID: 05010#1				
Laboratory Control Sample				
Sulfide	mg/L	6.43	7.10	90.6%
Date analyzed: 05/01/00 Batch ID: 05010#1				

ANALYTICAL RESOURCES INCORPORATED

QA Report - Standard Reference Material Analysis

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: NA

Data Release Authorized: MP
Reported: 05/15/00 Dr. M.A. Perkins

STANDARD REFERENCE MATERIAL ANALYSIS
CONVENTIONALS

Constituent	Units	Value	True Value	Recovery
NBS #2704				
Total Organic Carbon	Percent	3.29	3.35	98.2%

Date analyzed: 04/28/00 Batch ID: 04280#1

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: B031-Herrera Environmental Consultant
Matrix: Sediment
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized: MP
Reported: 05/15/00 Dr. M.A. Perkins

REPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Replicate Value(s)	RPD/RSD
ARI ID: 00-6164, B031 I Client Sample ID: 2B				
Total Solids	Percent	71.1	71.9	RPD: 1.1%
Preserved Total Solids	Percent	73.6	74.8 73.7	RSD: 0.9%
N-Ammonia	mg-N/kg	36	32 29	RSD: 10.9%
Sulfide	mg/kg	3.6	4.0 4.4	RSD: 10.0%
Total Organic Carbon	Percent	0.81	1.0 0.82	RSD: 12.2%

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: BO31-Herrera Environmental Consultant
Matrix: Sediment
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/15/00 Dr. M.A. Perkins

MATRIX SPIKE/MATRIX SPIKE DUP. QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 00-6164, BO31 I Client Sample ID: 2B					
N-Ammonia	mg-N/kg	36.5	174	141	97.8%
Sulfide MS	mg/kg	3.60	82.9	104	76.5%
Sulfide MSD	mg/kg	3.60	94.6	106	86.2%
Total Organic Carbon MS	Percent	0.813	1.64	0.840	98.5%
Total Organic Carbon MSD	Percent	0.813	1.56	0.910	82.1%

MS/MSD Recovery Limits: 75 - 125 %

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Lake

Lab Sample ID: BO42A
LIMS ID: 00-6267
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
200.8	05/02/00	200.8	05/04/00	7440-38-2	Arsenic	0.0002	0.0004
200.8	05/02/00	200.8	05/04/00	7440-43-9	Cadmium	0.0002	0.0002 U
3010	05/02/00	6010	05/11/00	7440-70-2	Calcium	0.05	9.76
200.8	05/02/00	200.8	05/04/00	7440-50-8	Copper	0.0005	0.0008
200.8	05/02/00	200.8	05/04/00	7439-92-1	Lead	0.001	0.001 U
3010	05/02/00	6010	05/11/00	7439-95-4	Magnesium	0.02	3.27
7470	05/02/00	7470	05/02/00	7439-97-6	Mercury	0.0001	0.0001 U
200.8	05/02/00	200.8	05/04/00	7440-66-6	Zinc	0.004	0.004 U

Calculated Hardness (mg-CaCO3/L): 38

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: Method Blank

Lab Sample ID: BO42MB
LIMS ID: 00-6267
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
200.8	05/02/00	200.8	05/04/00	7440-38-2	Arsenic	0.0002	0.0002 U
200.8	05/02/00	200.8	05/04/00	7440-43-9	Cadmium	0.0002	0.0002 U
3010	05/02/00	6010	05/11/00	7440-70-2	Calcium	0.05	0.05 U
200.8	05/02/00	200.8	05/04/00	7440-50-8	Copper	0.0005	0.0005 U
200.8	05/02/00	200.8	05/04/00	7439-92-1	Lead	0.001	0.001 U
3010	05/02/00	6010	05/11/00	7439-95-4	Magnesium	0.02	0.02 U
7470	05/02/00	7470	05/02/00	7439-97-6	Mercury	0.0001	0.0001 U
200.8	05/02/00	200.8	05/04/00	7440-66-6	Zinc	0.004	0.004 U

U Analyte undetected at given RL

RL Reporting Limit

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO42LCS
LIMS ID: 00-6267
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized:
Reported: 05/12/00

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike mg/L	Spike Added	% Recovery	Q
Arsenic	0.0230	0.0250	92.0%	
Cadmium	0.0230	0.0250	92.0%	
Calcium	10.3	10.0	103%	
Copper	0.0252	0.0250	101%	
Lead	0.027	0.025	108%	
Magnesium	10.2	10.0	102%	
Mercury	0.0019	0.0020	95.0%	
Zinc	0.024	0.025	96.0%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 1A

Lab Sample ID: BP06A
LIMS ID: 00-6623
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/01/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	2	55
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	2	11
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	250	109,000
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	5	808
200.8	05/09/00	200.8	05/10/00	7439-92-1	Lead	10	180
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	100	157,000
7470	05/09/00	7470	05/12/00	7439-97-6	Mercury	0.1	1.1
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	40	990

Calculated Hardness (mg-$CaCO_3$/L): 920

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 1B

Lab Sample ID: BP06B
LIMS ID: 00-6624
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	0.2	9.1
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	0.2	0.6
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	50	21,300
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	0.5	82.1
200.8	05/09/00	200.8	05/10/00	7439-92-1	Lead	1	22
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	20	17,500
7470	05/09/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.2
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	4	99

Calculated Hardness (mg-CaCO3/L): 120

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 2A

Lab Sample ID: BP06C
LIMS ID: 00-6625
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	2	42
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	2	5
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	250	109,000
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	5	1,030
200.8	05/09/00	200.8	05/10/00	7439-92-1	Lead	10	240
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	100	202,000
7470	05/15/00	7470	05/16/00	7439-97-6	Mercury	1	24
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	40	1,170

Calculated Hardness (mg-$CaCO_3$/L): 1100

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 2B
TOTAL METALS

Lab Sample ID: BP06D QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6626 Project: Capitol Lake
Matrix: Water

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	0.2	8.0
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	0.2	0.3
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	50	16,300
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	0.5	75.6
200.8	05/09/00	200.8	05/10/00	7439-92-1	Lead	1	18
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	20	17,300
7470	05/09/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	4	91

Calculated Hardness (mg-CaCO3/L): 110

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 3A

Lab Sample ID: BP06E
LIMS ID: 00-6627
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	0.2	8.0
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	0.2	0.3
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	50	15,400
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	0.5	78.8
200.8	05/09/00	200.8	05/10/00	7439-92-1	Lead	1	21
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	20	16,700
7470	05/09/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	4	94

Calculated Hardness (mg-CaCO3/L): 110

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET **Sample No: Method Blank**
TOTAL METALS

Lab Sample ID: BP06MB
LIMS ID: 00-6625
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/09/00	200.8	05/10/00	7440-38-2	Arsenic	0.2	0.2 U
200.8	05/09/00	200.8	05/10/00	7440-43-9	Cadmium	0.2	0.2 U
3010	05/09/00	6010	05/11/00	7440-70-2	Calcium	50	50 U
200.8	05/09/00	200.8	05/10/00	7440-50-8	Copper	0.5	0.5 U
200.8	**05/09/00**	**200.8**	**05/10/00**	**7439-92-1**	**Lead**	1	1
3010	05/09/00	6010	05/11/00	7439-95-4	Magnesium	20	20 U
7470	05/15/00	7470	05/16/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/09/00	200.8	05/10/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
TOTAL METALS

Sample No: 2A
Lab Sample ID: BP06LCS
QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6625
Project: Capitol Lake
Matrix: Water

Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Arsenic	24.0	25.0	96.0%	
Cadmium	23.8	25.0	95.2%	
Calcium	10400	10000	104%	
Copper	25.1	25.0	100%	
Lead	25.0	25.0	100%	
Magnesium	10200	10000	102%	
Mercury	2.10	2.00	105%	
Zinc	24.0	25.0	96.0%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 1B
Lab Sample ID: BP06B
QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6624
Project: Capitol Lake
Matrix: Water
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Spike ug/L	Spike Added	% Recovery	Q
Arsenic	9.1	28.8	25.0	78.8%	
Cadmium	0.6	24.1	25.0	94.0%	
Calcium	21300	31800	10000	105%	
Copper	82.1	100	25.0	71.6%	N
Lead	22	45	25	92.0%	
Magnesium	17500	28100	10000	106%	
Mercury	0.2	1.2	1.0	100%	
Zinc	99	121	25	88.0%	

'Q' codes:
N = control limit not met
H = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 1A
Lab Sample ID: BP06A
QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6623
Project: Capitol Lake
Matrix: Water

Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Duplicate ug/L	RPD	Control Limit	Q
Arsenic	55	52	5.6%	+/- 20 %	
Cadmium	11	11	0.0%	+/- 20 %	
Calcium	109000	111000	1.8%	+/- 20 %	
Copper	808	819	1.4%	+/- 20 %	
Lead	180	190	5.4%	+/- 20 %	
Magnesium	157000	162000	3.1%	+/- 20 %	
Mercury	1.1	1.1	0.0%	+/- 20 %	
Zinc	990	1060	6.8%	+/- 20 %	

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

ANALYTICAL RESOURCES INCORPORATED

INORGANIC ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: Lake(D)

Lab Sample ID: BC42B
LIMS ID: 00-6268
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
200.8	05/03/00	200.8	05/04/00	7440-38-2	Arsenic	0.0002	0.0004
200.8	05/03/00	200.8	05/04/00	7440-43-9	Cadmium	0.0002	0.0002 U
200.8	05/03/00	200.8	05/04/00	7440-50-8	Copper	0.0005	0.0005
200.8	05/03/00	200.8	05/04/00	7439-92-1	Lead	0.001	0.001 U
7470	05/08/00	7470	05/09/00	7439-97-6	Mercury	0.0001	0.0001 U
200.8	05/03/00	200.8	05/04/00	7440-66-6	Zinc	0.004	0.004 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANIC ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: Method Blank

Lab Sample ID: BO42MB
LIMS ID: 00-6268
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/12/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L
200.8	05/03/00	200.8	05/04/00	7440-38-2	Arsenic	0.0002	0.0002 U
200.8	05/03/00	200.8	05/04/00	7440-43-9	Cadmium	0.0002	0.0002 U
200.8	05/03/00	200.8	05/04/00	7440-50-8	Copper	0.0005	0.0005 U
200.8	05/03/00	200.8	05/04/00	7439-92-1	Lead	0.001	0.001 U
7470	05/08/00	7470	05/09/00	7439-97-6	Mercury	0.0001	0.0001 U
200.8	05/03/00	200.8	05/04/00	7440-66-6	Zinc	0.004	0.004 U

U Analyte undetected at given RL

RL Reporting Limit

FORM-I

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO42LCS
LIMS ID: 00-6268
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized:
Reported: 05/12/00

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike mg/L	Spike Added	% Recovery	Q
Arsenic	0.0252	0.0250	101%	
Cadmium	0.0255	0.0250	102%	
Copper	0.0264	0.0250	106%	
Lead	0.026	0.025	104%	
Mercury	0.0019	0.0020	95.0%	
Zinc	0.027	0.025	108%	

'Q' codes: N = control limit not met
NA = Not applicable - analyte not spiked

Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 1A(D)

Lab Sample ID: BP06F
LIMS ID: 00-6628
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/01/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	1.9
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	0.6
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 1B(D)

Lab Sample ID: BP06G
LIMS ID: 00-6629
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	0.5
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	1.0
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 2A(D)

Lab Sample ID: BP06H
LIMS ID: 00-6630
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	2.4
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	3.8
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET Sample No: 2B(D)
DISSOLVED METALS

Lab Sample ID: BP06I QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6631 Project: Capitol Lake
Matrix: Water

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	0.7
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	1.1
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: 3A(D)

Lab Sample ID: BP06C
LIMS ID: 00-6632
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	0.7
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	1.0
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample No: Method Blank

Lab Sample ID: BP06MB
LIMS ID: 00-6630
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: NA
Date Received: NA

Data Release Authorized:
Reported: 05/17/00

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	ug/L
200.8	05/11/00	200.8	05/12/00	7440-38-2	Arsenic	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-43-9	Cadmium	0.2	0.2 U
200.8	05/11/00	200.8	05/12/00	7440-50-8	Copper	0.5	0.5 U
200.8	05/11/00	200.8	05/12/00	7439-92-1	Lead	1	1 U
7470	05/11/00	7470	05/12/00	7439-97-6	Mercury	0.1	0.1 U
200.8	05/11/00	200.8	05/12/00	7440-66-6	Zinc	4	4 U

U Analyte undetected at given RL

RL Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

METALS ANALYSIS DATA SHEET
DISSOLVED METALS

Lab Sample ID: BP06LCS
LIMS ID: 00-6630
Matrix: Water

Data Release Authorized:
Reported: 05/17/00

Sample No: 2A(D)
QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Received: 05/02/00

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Spike ug/L	Spike Added	% Recovery	Q
Arsenic	25.8	25.0	103%	
Cadmium	28.8	25.0	115%	
Copper	27.8	25.0	111%	
Lead	28	25.0	114%	
Mercury	2.0	2.0	100%	
Zinc	29	25.0	118%	

'Q' codes: N = control limit not met

Control Limits: 80-120%

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 1B(D)
Lab Sample ID: BP06G
QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6629
Project: Capitol Lake
Matrix: Water
Date Received: 05/02/00
Data Release Authorized:
Reported: 05/17/00

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Spike ug/L	Spike Added	% Recovery	Q
Arsenic	0.5	24.9	25.0	97.6%	
Cadmium	0.2 U	26.9	25.0	108%	
Copper	1.0	27.2	25.0	105%	
Lead	1 U	27	25	108%	
Mercury	0.1 U	1.0	1.0	100%	
Zinc	4 U	26	25	104%	

'Q' codes:
N = control limit not met
H = %R not applicable, sample concentration too high
* = RPD control limit not met
NA = Not applicable - analyte not spiked

Control Limits:
Percent Recovery: 75-125%
RPD: +/-20%

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 1A(D)
Lab Sample ID: BP06F
QC Report No: BP06-Herrera Environmental Consultant
LIMS ID: 00-6628
Project: Capitol Lake
Matrix: Water

Date Received: 05/02/00

Data Release Authorized:
Reported: 05/17/00

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Sample ug/L	Duplicate ug/L	RPD	Control Limit	Q
Arsenic	1.9	1.9	0.0%	+/- 20 %	
Cadmium	0.2 U	0.2 U	0.0%	+/- 0.2	L
Copper	0.6	0.6	0.0%	+/- 0.5	L
Lead	1 U	1 U	0.0%	+/- 1	L
Mercury	0.1 U	0.1 U	0.0%	+/- 0.1	L
Zinc	4 U	4 U	0.0%	+/- 4	L

'Q' codes: * = control limit not met
L = RPD not valid, alternate limit = detection limit

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: Lake

Lab Sample ID: BO42A
LIMS ID: 00-6267
Matrix: Water

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Data Release Authorized: MB
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	04/27/00 04270#2	EPA 353.2	0.010	mg-N/L	0.45

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BO42 received 04/26/00

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: B042-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake
1384-4
Date Received: NA

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result	
04/27/00 04270#2	Nitrate + Nitrite (NO2+NO3)	mg-N/L	< 0.010	U

ANALYTICAL RESOURCES INCORPORATED

QA Report - Standard Reference Material Analysis

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: NA

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

STANDARD REFERENCE MATERIAL ANALYSIS
CONVENTIONALS

Constituent	Units	Value	True Value	Recovery
SPEX #15-121				
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.399	0.400	99.8%

Date analyzed: 04/27/00 Batch ID: 04270#2

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: BO42-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

DUPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Duplicate Value	RPD
ARI ID: 00-6267, BO42 A Client Sample ID: Lake				
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.45	0.45	0.0%

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: B042-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

MATRIX SPIKE QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 00-6267, B042 A Client Sample ID: Lake					
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.451	0.798	0.400	86.8%

MS/MSD Recovery Limits: 75 - 125 %

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 1A

Lab Sample ID: BP06A
LIMS ID: 00-6623
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/01/00
Date Received: 05/02/00

Data Release Authorized: MP
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	05/04/00 05040#2	EPA 353.2	0.010	mg-N/L	0.38

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BP06 received 05/02/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 1B

Lab Sample ID: BP06B
LIMS ID: 00-6624
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	05/04/00 05040#2	EPA 353.2	0.010	mg-N/L	0.43

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BP06 received 05/02/00

ANALYTICAL RESOURCES INCORPORATED

QA Report - Standard Reference Material Analysis

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Received: NA

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

STANDARD REFERENCE MATERIAL ANALYSIS
CONVENTIONALS

Constituent	Units	Value	True Value	Recovery
SPEX #15-121				
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.400	0.400	100%

Date analyzed: 05/04/00 Batch ID: 05040#2

ANALYTICAL RESOURCES INCORPORATED

QA Report - Replicate Analysis

QC Report No: BP06-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake

Date Received: 05/02/00

Data Release Authorized: MP
Reported: 05/12/00 Dr. M.A. Perkins

DUPLICATE ANALYSIS RESULTS
CONVENTIONALS

Constituent	Units	Sample Value	Duplicate Value	RPD
ARI ID: 00-6623, BP06 A Client Sample ID: 1A				
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.38	0.38	0.0%

ANALYTICAL RESOURCES INCORPORATED

QA Report - Matrix Spike/Matrix Spike Duplicate Analysis

QC Report No: BP06-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake

Data Release Authorized: Date Received: 05/02/00
Reported: 05/12/00 Dr. M.A. Perkins

MATRIX SPIKE QA/QC REPORT
CONVENTIONALS

Constituent	Units	Sample Value	Spike Value	Spike Added	Recovery
ARI ID: 00-6623, BP06 A Client Sample ID: 1A					
Nitrate + Nitrite (NO2+NO3)	mg-N/L	0.375	0.724	0.400	87.2%

MS/MSD Recovery Limits: 75 - 125 %

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 2A

Lab Sample ID: BP06C
LIMS ID: 00-6625
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	05/04/00 05040#2	EPA 353.2	0.010	mg-N/L	0.32

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BP06 received 05/02/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 2B

Lab Sample ID: BP06D
LIMS ID: 00-6626
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized: MC
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	05/04/00 05040#2	EPA 353.2	0.010	mg-N/L	0.38

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BP06 received 05/02/00

ANALYTICAL RESOURCES INCORPORATED

Final Report
Laboratory Analysis of Conventional Parameters

Sample No: 3A

Lab Sample ID: BP06E
LIMS ID: 00-6627
Matrix: Water

QC Report No: BP06-Herrera Environmental Consultant
Project: Capitol Lake

Date Sampled: 05/02/00
Date Received: 05/02/00

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

Analyte	Analysis Date & Batch	Method	RL	Units	Result
Nitrate + Nitrite (NO2+NO3)	05/04/00 05040#2	EPA 353.2	0.010	mg-N/L	0.38

RL Analytical reporting limit
U Undetected at reported detection limit

Report for BP06 received 05/02/00

ANALYTICAL RESOURCES INCORPORATED

QA Report - Method Blank Analysis

QC Report No: BP06-Herrera Environmental Consultant
Matrix: Water
Project: Capitol Lake

Date Received: NA

Data Release Authorized:
Reported: 05/12/00 Dr. M.A. Perkins

METHOD BLANK RESULTS
CONVENTIONALS

Analysis Date & Batch	Constituent	Units	Result	
05/04/00 05040#2	Nitrate + Nitrite (NO2+NO3)	mg-N/L	< 0.010	U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

18 May 2000

Rob Zisette
Herrera Environmental Consultants, Inc.
1414 Dexter Avenue North
Suite 200
Seattle, WA 98109

RE: Project: 1384-4 Capitol Lake
ARI Job Nos: BO31, BO42, and BP06

Dear Rob:

Please find enclosed an original chain of custody record and a set of analytical results for the above referenced project. Five sediment samples, one water sample, and five wipe samples were received in good condition on April 26, 2000. Five elutriate samples for this project were received from Rosa Environmental and Geotechnical Laboratory on May 2, 2000.

The sediment and wipe samples were analyzed for PSDDA volatiles with additional compounds referencing US EPA method 8260, PSDDA semivolatiles referencing US EPA method 8270, PSDDA Pesticides/PCBs referencing US EPA method 8081, total metals referencing US EPA methods 6010/7471, TCLP metals referencing US EPA methods 1311/6010/7471, ammonia, referencing US EPA method 350.1, sulfide referencing US EPA method 376.2, total organic carbon, referencing Plumb (1981), and total solids referencing US EPA method 160.3 according to PSEP protocols. Quality control analysis results are included for your review.

The water and elutriate samples were analyzed for total metals and hardness referencing US EPA methods 200.8 and 6010, dissolved metals referencing US EPA method 200.8, and nitrate plus nitrite referencing US EPA method 353.2.

The relative percent difference (RPD) for pentachlorophenol in the matrix spike and matrix spike duplicate (MS/MSD) performed on sample **2B** for the semivolatiles analysis is high at 76%. Recoveries in both the MS and MSD are low (14.2% and 31.6% respectively). A matrix effect is potentially indicated as recovery of pentachlorophenol in the laboratory control sample is good.

Copper was detected in the method blank associated with the total metals analysis of the sediment samples at .1 mg/kg. Copper was detected in all of the samples at levels greater than ten time the level in the method blank and no corrective action was taken.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Recovery of antimony in the total metals matrix spike performed on sample **2B** is below the QC limit of 75% at 63.6%. Antimony tends to react with active sites on the glassware used in sample preparation and precipitate out as silicates. Recovery of antimony in the standard reference material is good.

Barium was detected in the method blank associated with the TCLP analysis of the sediments at .004 mg/L. Barium was detected in all of the TCLP analyses of the samples at levels greater than ten times the level in the blank and no corrective action was taken.

Recovery of antimony in the laboratory control sample (LCS) associated with the total metals analysis of the wipe samples was below the QC limit of 80%. As with the sediment matrix spike, the antimony is subject to lowered recoveries due to precipitation out as silicates. All other recoveries in the LCS are good. No corrective action was taken.

Lead was detected in the method blank associated with the total metals analysis of the elutriate samples. Lead was detected in all of the sample analyses associated with this method blank at levels ten times above the level in the method blank and no corrective action was taken.

No further analytical complications were noted. Copies of these reports and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mary Lou Fox

Mary Lou Fox
Project Manager
marylou@arilabs.com
(206)-389-6155

MLF/mlf
Enclosures
File: BO37, BO42, and BP06

00-6156 00-6160
8031

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporate
Analytical Chemists and Consultan
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax

Page 1 of 1 Turn Around Requested: _____

REG LAB

Report to: Rob Zisette	Proj Name: Capitol Lake
Company: Herrera	Proj Number: 1384-4
Address: 2200 Sixth #601 Seattle WA 98121	Sampler: Rob Z
Phone: (206) 441-9080	Shipping Method:
Fax: (206) 441-9408	AirBill:

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Total Metals*	TCLP Metals*	Sulfide	Ammonia	TOC	HCID	Semi Volatile Drugs	Volatile Drugs	Pest+PCBs	Attenberg Limits (IVS) with Organic Det. (IVS)	Elutriate Test*	Grain Size	Sp. Gravity	Hardness
1A	4/25/00	1200	Sed	7	X	X	X	X	X	X	X	X	X	X	X	X	X	
1B		1050		7	X	X	X	X	X	X	X	X	X	X	X	X	X	
2A		1600		7	X	X	X	X	X	X	X	X	X	X	X	X	X	
2B		1430		7	X	X	X	X	X	X	X	X	X	X	X	X	X	
3A		1830		7	X	X	X	X	X	X	X	X	X	X	X	X	X	
MS/MSD		1430		4							X	X	X					
Lake		1800	Water	1											X			X
Metals Wipe #1		1845	Wipe	1	X													
Metals Wipe #2				1	X													
Metals Wipe #3				1	X													
Organic Wipe #1				1							X							
Organic Wipe #2				1							X							
TRIP BLANK	4/19/00																	

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)
Printed name: Kent B Easthouse	Printed name:	Printed name:
Company: Herrera	Company:	Company:
Date: 4/26/00 Time: 1045	Date: Time:	Date: Time:
Received by:	Received by:	Received by:
Printed name:	Printed name:	Printed name:
Company:	Company:	Company:
Date: 4/26/00 Time: 1110	Date: Time:	Date: Time:

Special Instructions/Notes
* As, Ag, Cd, Cr, Cu, Pb, Hg, Ni, Sb, Zn
* Do not do TCLP Metals Wait until results of Total Metals are Known and we will tell you what to do
* REG Lab will do Attenberg with Organic determination (IVS) Elutriate Testing, Grain Size, Sp. Gravity, Hardness, NO3

Number of Coolers:	
Cooler Temp(s):	
COC Seals Intact?	
Bottles Intact?	

* Elutriate Test for

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Inco
Analytical Chemists and Co
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-75

Page 1 of 4

Turn Around Requested: ________

Report to: Rob Zisette	Proj Name: Capitol Lake
Company: Herrera	Proj Number: 1384-4
Address: 2200 Sixth, #601	Sampler: Rob Z
Seattle WA 98121	
Phone: (206) 441-9080	Shipping Method:
Fax: (206) 441-9108	AirBill:

Analyses Requested | Notes/Cor

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Total Sb - GFAA	Total As - GFAA	Total Cd - GFAA	Total Ag - GFAA	Total Cr - ICP	Total Cu - ICP	Total Pb - ICP	Total Ni - ICP	Total Zn - ICP	Total Hg - Method 7471	Notes
1A	4/25/00	1200	Sed	7	X	X	X	X	X	X	X	X	X	X	
1B	↓	1050	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
2A	↓	1600	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
2B	↓	1430	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
3A	↓	1830	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MS/MSD (2B)	↓	1430	↓	4	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	
Lake	↓	1800	Water	1											
Metals Wipe #1	↓	1845	Wipe	1											
Metals Wipe #2	↓	↓	↓	1											
Metals Wipe #3	↓	↓	↓	1											
Organic Wipe #1	↓	↓	↓	1											
Organic wipe #2	↓	↓	↓	1											

Relinquished: (Signature) [signature]	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/N: Methods Attac in Table E-1
Printed name: Kent Easthouse	Printed name:	Printed name:	
Company: Herrera	Company:	Company:	
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:	
Received by: Mary Lou Fox	Received by:	Received by:	
Printed name: Mary Lou Fox	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers: Cooler Temp(s):
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:	COC Seals Intact? Bottles Intact?

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporate
Analytical Chemists and Consultan
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax

Page 2 of 4 Turn Around Requested: _____

Report to: Rob Zisette	Proj Name: Capitol Lake
Company: Herrera	Proj Number: 1384-4
Address:	Sampler:
Phone:	Shipping Method:
Fax:	AirBill:

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Analyses Requested: TCLP As - ICP	TCLP Ba - ICP	TCLP Cd - ICP	TCLP Cr - ICP	TCLP Pb - GFAA	TCLP Hg - CVAA Method 7470	TCLP Ag - ICP	Soluble (PSEP)	Ammonia (PSEP)	TOC (PSEP)	TCLP Se - ICP	Notes/Comments
1A	4/25/00	1200	Sed	7	X	X	X	X	X	X	X	X	X	X	X	
1B		1050		7												
2A		1600		7												
2B		1430		7												
3A		1830		7												
MS/MSD (2B)		1430		4												
Lake		1800	water	1												
Metals Wipe #1		1845	Wipe	1												
Metals Wipe #2				1												
Metals Wipe #3				1												
Org Wipe #1				1												
Org Wipe #2				1												

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: Kent EastHouse	Printed name:	Printed name:	Bulk Sed methods Attached in table B
Company: Herrera	Company:	Company:	
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:	
Received by: Mary Lou Fox	Received by:	Received by:	
Printed name: Mary Lou Fox	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:	Cooler Temp(s):
			COC Seals Intact?
			Bottles Intact?

Chain of Custody Record & Laboratory Analysis Request

Turn Around Requested: ________

Analytical Resources, Incorpo…
Analytical Chemists and Consu…
4[illegible] Ninth Avenue North
Seattle, WA 98109-4708
20[illegible]621-6490 206-621-7523

Report to: Rob Zisette	Proj Name: Capitol Lake
Company: Herrera	Proj Number: 1384-4
Address:	Sampler:
Phone:	Shipping Method:
Fax:	AirBill:

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	NWTPH-HCID	SVOA-8270	VOA-8260	Pest/PCB-8081	Total Solids (PSEP)	TVS (PSEP)	Atterberg Limits w/organic determination	Elutriate Test (Standard Elutriate EPA 823-B-[illegible])	Grain Size (PSEP)	Sp. Gravity (gravimetric)	Notes/Comme…
1A	4/25/00	1200	Sed	7	X	X	X	X	X	X	X	X	X	X	Bulk Sed Methods Attached in Tab E-1
1B	↓	1850	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
2A	↓	1600	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
2B	↓	1430	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
3A	↓	1830	↓	7	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MS/MSD (2B)	↓	1430	↓	4		↓	↓	↓							
Lake	↓	1800	water	1								X			
Metal Wipe 1	↓	1845	wipe	1											
Metal Wipe 2	↓	↓	↓	1											
Metal Wipe 3	↓	↓	↓	1											
Org Wipe 1	↓	↓	↓	1											
Org Wipe 2	↓	↓	↓	1											

Relinquished: (Signature) [signature]	Relinquished: (Signature)	Relinquished: (Signature)
Printed name: Kent Easthouse	Printed name:	Printed name:
Company: Herrera	Company:	Company:
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:
Received by: Mary Lou Fox	Received by:	Received by:
Printed name: Mary Lou Fox	Printed name:	Printed name:
Company: ARI	Company:	Company:
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:

Special Instructions/Notes:

Elutriate Test- Sta… EPA 823B-94-002

Grain Size-use w… Modified ASTM… PSEP/PSDDA meth…

REG Lab to Perform Atterberg, Elutriate, Grain Size, Sp. Gravity, Total Solids, TVS

Number of Coolers:

Cooler Temp(s):

COC Seals Intact?

Bottles Intact?

Analytical Resources, Incorporate
Analytical Chemists and Consultan
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (fax

Chain of Custody Record & Laboratory Analysis Request

Turn Around Requested:

Report to: Rob Zisette
Company: Herrera
Address:
Phone:
Fax:

Proj Name: Capitol Lake
Proj Number: 1384-4
Sampler:
Shipping Method:
AirBill:

Analyses Requested: Total/Dissolved As - ICP; Total/Diss Cd - GFAA; Total/Diss Pb - GFAA; Total/Diss Hg - CVAA; Total/Diss Cu - GFAA; Total/Diss Zn - ICP; Hardness; NO_2+NO_3

Notes/Comments: 006267 006282 BQ42

Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	Total/Dissolved As - ICP	Total/Diss Cd - GFAA	Total/Diss Pb - GFAA	Total/Diss Hg - CVAA	Total/Diss Cu - GFAA	Total/Diss Zn - ICP	Hardness	NO_2+NO_3		
1A	4/25/00	1200	Sed	7										
1B	↓	1050	↓	7										
2A	↓	1600	↓	7										
2B	↓	1430	↓	7										
3A	↓	1830	↓	7										
MS/MSD (2B)	↓	1430	↓	4										
Lake	↓	1800	Water	1	X	X	X	X	X	X	X	X		
Metal Wipe 1	↓	1845	Wipe	1										
Metal Wipe 2	↓	↓	↓	1										
Metal Wipe 3	↓	↓	↓	1										
Dry Wipe 1	↓	↓	↓	1										
Dry Wipe 2	↓	↓	↓	1										

Relinquished: (Signature)	Relinquished: (Signature)	Relinquished: (Signature)
[signature]		
Printed name: Kent Easthouse	Printed name:	Printed name:
Company: Herrera	Company:	Company:
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:
Received by: Mary Lou Fox	Received by:	Received by:
Printed name: Mary Lou Fox	Printed name:	Printed name:
Company: ARI	Company:	Company:
Date: 4/26/00 Time: 1410	Date: Time:	Date: Time:

Special Instructions/Notes: * Metals, Hardness & NO_2+NO_3 analys Pre + Post Elutriate test. Contact REG Lab to coordinate

Number of Coolers:
Cooler Temp(s):
COC Seals Intact?
Bottles Intact?

00-1623 to 00-1632 BP06

CHAIN OF CUSTODY RECORD & LABORATORY ANALYSIS REQUEST

Date: 5/2/00 Page: 1 of: 1

REGL Job ID 1041-002

0.5

Rosa Environmental & Geotechnical Laboratory, LLC
~~400 Ninth Avenue North, Suite B. Seattle, WA 98109~~
PH (206) 287-9122 FAX (206) 654-0540

Client Company: Herrera
Address:
CONTACT: Rob Zisette
Phone:
Project Name: Capitol Lake
Project Number: PO#

Sample receipt

Shipped by:
Number of coolers in shipment:
Custody seals present/intact:
Cooler temperatures:
Bottle seals present/intact:
Client contact w/discrepancies:

	Sample ID	Date	Time	Matrix	#Cont	LAB#	Diss. Metals	Total Metals	NO_3/NO_2	Analysis Requested
1	Elutriate 1A	5/1/00	3:42	Water	3		✓	✓	✓	
2	" 1B	5/2/00	15:30	"	"		✓	✓	✓	
3	" 2A	5/2/00	16:10	"	"		✓	✓	✓	
4	" 2B	5/2/00	1650	"	"		✓	✓	✓	
5	" 3A	5/2/00	1725	"	"		✓	✓	✓	
6										
7										
8										
9										
10										

Turnaround requested:
Known hazardous content/rating:
Special instructions/comments:

Relinquished by:	Relinquished by:	Relinquished by:
Printed name: Marie Rosa	Printed name:	Printed name:
Company: REGL	Company:	Company:
Date: 5/2/00 Time: 1015	Date: Time:	Date: Time:
Received by:	**Received by:**	**Received by:**
Printed name: Carrie McDougal	Printed name:	Printed name:
Company: ARI	Company:	Company:
Date: 5/2/00 Time: 1815	Date: Time:	Date: Time:

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 1A

Lab Sample ID: BO31F
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized: MW
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 4.73 g dry Wt
Percent Moisture: 27.0%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	3.2 U
71-55-6	1,1,1-Trichloroethane	1.1 U
79-01-6	Trichloroethene	1.1 U
71-43-2	Benzene	1.1 U
127-18-4	Tetrachloroethene	1.1 U
108-88-3	Toluene	1.1 U
100-41-4	Ethylbenzene	1.1 U
1330-20-7	m,p-Xylene	1.1 U
95-47-6	o-Xylene	1.1 U
1330-20-7	Total Xylenes	2.1 U
95-50-1	1,2-Dichlorobenzene	1.1 U
541-73-1	1,3-Dichlorobenzene	1.1 U
106-46-7	1,4-Dichlorobenzene	1.1 U
106-93-4	Ethylene Dibromide	1.1 U
120-82-1	1,2,4-Trichlorobenzene	5.3 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	105%
d8-Toluene	100%
Bromofluorobenzene	96.0%
d4-1,2-Dichlorobenzene	94.5%

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORAT

Sample No: 1B

Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment
Data Release Authorized:
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 5.39 g dry Wt
Percent Moisture: 17.9%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	2.8 U
71-55-6	1,1,1-Trichloroethane	0.9 U
79-01-6	Trichloroethene	0.9 U
71-43-2	Benzene	0.9 U
127-18-4	Tetrachloroethene	0.9 U
108-88-3	Toluene	0.9 U
100-41-4	Ethylbenzene	0.9 U
1330-20-7	m,p-Xylene	0.9 U
95-47-6	o-Xylene	0.9 U
1330-20-7	Total Xylenes	1.9 U
95-50-1	1,2-Dichlorobenzene	0.9 U
541-73-1	1,3-Dichlorobenzene	0.9 U
106-46-7	1,4-Dichlorobenzene	0.9 U
106-93-4	Ethylene Dibromide	0.9 U
120-82-1	1,2,4-Trichlorobenzene	4.6 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	102%
d8-Toluene	101%
Bromofluorobenzene	91.1%
d4-1,2-Dichlorobenzene	94.9%

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 2A

Lab Sample ID: BO31H
LIMS ID: 00-6163
Matrix: Sediment
Data Release Authorized: [signature]
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 4.30 g dry Wt
Percent Moisture: 33.8%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	3.5 U
71-55-6	1,1,1-Trichloroethane	1.2 U
79-01-6	Trichloroethene	1.2 U
71-43-2	Benzene	1.2 U
127-18-4	Tetrachloroethene	1.2 U
108-88-3	Toluene	1.2 U
100-41-4	Ethylbenzene	1.2 U
1330-20-7	m,p-Xylene	1.2 U
95-47-6	o-Xylene	1.2 U
1330-20-7	Total Xylenes	2.3 U
95-50-1	1,2-Dichlorobenzene	1.2 U
541-73-1	1,3-Dichlorobenzene	1.2 U
106-46-7	1,4-Dichlorobenzene	1.2 U
106-93-4	Ethylene Dibromide	1.2 U
120-82-1	1,2,4-Trichlorobenzene	5.8 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	101%
d8-Toluene	99.4%
Bromofluorobenzene	90.4%
d4-1,2-Dichlorobenzene	92.8%

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample No: 2B

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized:
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 5.11 g dry Wt
Percent Moisture: 21.9%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	2.9 U
71-55-6	1,1,1-Trichloroethane	1.0 U
79-01-6	Trichloroethene	1.0 U
71-43-2	Benzene	1.0 U
127-18-4	Tetrachloroethene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
1330-20-7	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U
1330-20-7	Total Xylenes	2.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
106-93-4	Ethylene Dibromide	1.0 U
120-82-1	1,2,4-Trichlorobenzene	4.9 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	94.5%
d8-Toluene	97.7%
Bromofluorobenzene	91.7%
d4-1,2-Dichlorobenzene	94.0%

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 2B
MATRIX SPIKE

Lab Sample ID: BO31I-MS
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized:
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 5.10 g dry Wt
Percent Moisture: 21.9%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	---
71-55-6	1,1,1-Trichloroethane	---
79-01-6	Trichloroethene	---
71-43-2	Benzene	---
127-18-4	Tetrachloroethene	---
108-88-3	Toluene	---
100-41-4	Ethylbenzene	---
1330-20-7	m,p-Xylene	---
95-47-6	o-Xylene	---
1330-20-7	Total Xylenes	---
95-50-1	1,2-Dichlorobenzene	---
541-73-1	1,3-Dichlorobenzene	---
106-46-7	1,4-Dichlorobenzene	---
106-93-4	Ethylene Dibromide	---
120-82-1	1,2,4-Trichlorobenzene	---

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	105%
d8-Toluene	99.9%
Bromofluorobenzene	97.8%
d4-1,2-Dichlorobenzene	94.8%

ANALYTICAL RESOURCES INCORPORATI

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample No: 2B
SPIKE DUPLICATE

Lab Sample ID: BO31I-MSD
LIMS ID: CO-6164
Matrix: Sediment
Data Release Authorized:
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 5.10 g dry Wt
Percent Moisture: 21.9%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	---
71-55-6	1,1,1-Trichloroethane	---
79-01-6	Trichloroethene	---
71-43-2	Benzene	---
127-18-4	Tetrachloroethene	---
108-88-3	Toluene	---
100-41-4	Ethylbenzene	---
1330-20-7	m,p-Xylene	---
95-47-6	o-Xylene	---
1330-20-7	Total Xylenes	---
95-50-1	1,2-Dichlorobenzene	---
541-73-1	1,3-Dichlorobenzene	---
106-46-7	1,4-Dichlorobenzene	---
106-93-4	Ethylene Dibromide	---
120-82-1	1,2,4-Trichlorobenzene	---

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	103%
d8-Toluene	96.3%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	95.9%

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORATED

Sample No: 3A

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment
Data Release Authorized: MW
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 4.94 g dry Wt
Percent Moisture: 24.6%

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	3.0 U
71-55-6	1,1,1-Trichloroethane	1.0 U
79-01-6	Trichloroethene	1.0 U
71-43-2	Benzene	1.0 U
127-18-4	Tetrachloroethene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
1330-20-7	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U
1330-20-7	Total Xylenes	2.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
106-93-4	Ethylene Dibromide	1.0 U
120-82-1	1,2,4-Trichlorobenzene	5.1 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	98.2%
d8-Toluene	103%
Bromofluorobenzene	89.7%
d4-1,2-Dichlorobenzene	97.4%

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS
Page 1 of 1

Sample No: Method Blank

Lab Sample ID: 050100MB
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized: MW
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 6.50 g dry Wt Equiv
Percent Moisture: NA

CAS Number	Analyte	ug/kg
75-09-2	Methylene Chloride	2.3 U
71-55-6	1,1,1-Trichloroethane	0.8 U
79-01-6	Trichloroethene	0.8 U
71-43-2	Benzene	0.8 U
127-18-4	Tetrachloroethene	0.8 U
108-88-3	Toluene	0.8 U
100-41-4	Ethylbenzene	0.8 U
1330-20-7	m,p-Xylene	0.8 U
95-47-6	o-Xylene	0.8 U
1330-20-7	Total Xylenes	1.5 U
95-50-1	1,2-Dichlorobenzene	0.8 U
541-73-1	1,3-Dichlorobenzene	0.8 U
106-46-7	1,4-Dichlorobenzene	0.8 U
106-93-4	Ethylene Dibromide	0.8 U
120-82-1	1,2,4-Trichlorobenzene	3.8 U

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	85.3%
d8-Toluene	97.2%
Bromofluorobenzene	89.6%
d4-1,2-Dichlorobenzene	95.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample No: Trip Blank

Lab Sample ID: BO31K
LIMS ID: 00-6166
Matrix: Water
Data Release Authorized:
Reported: 05/04/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/19/00
Date Received: 04/26/00

Instrument: FINN1
Date Analyzed: 05/01/00

Sample Amount: 5.00 mL
Purge Volume: 5.0 mL

CAS Number	Analyte	ug/L
75-09-2	Methylene Chloride	3.5
71-55-6	1,1,1-Trichloroethane	1.0 U
79-01-6	Trichloroethene	1.0 U
71-43-2	Benzene	1.0 U
127-18-4	Tetrachloroethene	1.0 U
108-88-3	Toluene	1.0 U
100-41-4	Ethylbenzene	1.0 U
1330-20-7	Total Xylenes	2.0 U
1330-20-7	m,p-Xylene	1.0 U
95-47-6	o-Xylene	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
106-93-4	Ethylene Dibromide	1.0 U
120-82-1	1,2,4-Trichlorobenzene	5.0 U

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.8%
d8-Toluene	100%
Bromofluorobenzene	93.6%
d4-1,2-Dichlorobenzene	97.2%

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORAT

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

Sample No: 2B
QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/04/00

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY
Date Analyzed: 05/01/00

CONSTITUENT		SAMPLE VALUE	SPIKE VALUE	SPIKE AMT	% RECOVERY	RPD
MATRIX SPIKE						
Methylene Chloride	<	2.9	37.2	49.0	75.9%	
1,1,1-Trichloroethane	<	1.0	41.7	49.0	85.1%	
Trichloroethene	<	1.0	40.9	49.0	83.4%	
Benzene	<	1.0	43.0	49.0	87.7%	
Tetrachloroethene	<	1.0	39.0	49.0	79.6%	
Toluene	<	1.0	41.4	49.0	84.5%	
Ethylbenzene	<	1.0	40.3	49.0	82.2%	
Total Xylenes	<	2.0	121	147	82.3%	
m,p-Xylene	<	1.0	81.1	98.0	82.7%	
O-Xylene	<	1.0	39.8	49.0	81.2%	
1,2-Dichlorobenzene	<	1.0	32.0	49.0	65.3%	
1,3-Dichlorobenzene	<	1.0	32.9	49.0	67.1%	
1,4-Dichlorobenzene	<	1.0	33.3	49.0	67.9%	
Ethylene Dibromide	<	1.0	37.2	49.0	75.9%	
1,2,4-Trichlorobenzene	<	4.9	20.2	49.0	41.2%	
MATRIX SPIKE DUPLICATE						
Methylene Chloride	<	2.9	38.0	49.0	77.5%	2.1%
1,1,1-Trichloroethane	<	1.0	44.3	49.0	90.4%	6.1%
Trichloroethene	<	1.0	42.5	49.0	86.7%	3.8%
Benzene	<	1.0	44.9	49.0	91.6%	4.3%
Tetrachloroethene	<	1.0	39.2	49.0	80.0%	0.6%
Toluene	<	1.0	42.1	49.0	85.9%	1.7%
Ethylbenzene	<	1.0	42.9	49.0	87.5%	6.2%
Total Xylenes	<	2.0	129	147	87.7%	6.4%
m,p-Xylene	<	1.0	86.6	98.0	88.3%	6.5%
O-Xylene	<	1.0	42.2	49.0	86.1%	5.9%
1,2-Dichlorobenzene	<	1.0	35.0	49.0	71.4%	9.0%
1,3-Dichlorobenzene	<	1.0	36.5	49.0	74.5%	10%
1,4-Dichlorobenzene	<	1.0	34.8	49.0	71.0%	4.4%
Ethylene Dibromide	<	1.0	38.6	49.0	78.7%	3.6%
1,2,4-Trichlorobenzene	<	4.9	23.3	49.0	47.5%	14%

Reported in ug/kg-dry-Wt

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31SB
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized:
Reported: 05/04/00
Date Analyzed: 05/01/00
Instrument: FINN1

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: NA

LABORATORY CONTROL SAMPLE CONSTITUENT	SPIKE VALUE	SPIKE AMT	% RECOVERY
Methylene Chloride	40.2	38.5	105%
1,1,1-Trichloroethane	41.5	38.5	108%
Trichloroethene	42.0	38.5	109%
Benzene	42.3	38.5	110%
Tetrachloroethene	40.6	38.5	106%
Toluene	42.5	38.5	110%
Ethylbenzene	41.5	38.5	108%
Total Xylenes	128.	115	111%
m,p-Xylene	85.4	76.9	111%
O-Xylene	43.3	38.5	113%
1,2-Dichlorobenzene	41.8	38.5	109%
1,3-Dichlorobenzene	43.2	38.5	112%
1,4-Dichlorobenzene	43.2	38.5	112%
Ethylene Dibromide	43.4	38.5	113%
1,2,4-Trichlorobenzene	40.8	38.5	106%

Spike Blank Surrogate Recovery	
d4-1,2-Dichloroethane	90.1%
d8-Toluene	101%
Bromofluorobenzene	98.2%
d4-1,2-Dichlorobenzene	98.0%

Reported in ug/kg-dry-Wt

SOIL VOLATILE SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Sediment

QC Report No: BO31

Lab ID	Client ID	DCE	TOL	BFB	DCB	TOT OUT
050100MB	Method Blank	85%	97%	90%	95%	0
BO31F	1A	105%	100%	96%	94%	0
BO31LCS	Lab Cntrl Sample	90%	101%	98%	98%	0
BO31G	1B	102%	101%	91%	95%	0
BO31H	2A	101%	99%	90%	93%	0
BO31I	2B	94%	98%	92%	94%	0
BO31I-MS	2B	105%	100%	98%	95%	0
BO31I-MSD	2B	103%	96%	101%	96%	0
BO31J	3A	98%	103%	90%	97%	0

		LCS/MB LIMITS	QC LIMITS
(DCE)	= 1,2-Dichloroethane-d4	(70-130)	(70-130)
(TOL)	= Toluene-d8	(70-130)	(70-130)
(BFB)	= Bromofluorobenzene	(70-130)	(70-130)
(DCB)	= 1,2-Dichlorobenzene-d4	(70-130)	(70-130)

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

ANALYTICAL RESOURCES INCORPORATED

WATER VOLATILE SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water 5 mL QC Report No: BO31

Lab ID	Client ID	DCE	TOL	BFB	DCB	TOT OUT
BO31K	Trip Blank	95%	100%	94%	97%	0

	LCS/MB LIMITS	QC LIMITS
(DCE) = 1,2-Dichloroethane-d4	(70-130)	(70-130)
(TCL) = Toluene-d8	(70-130)	(70-130)
(BFB) = Bromofluorobenzene	(70-130)	(70-130)
(DCB) = 1,2-Dichlorobenzene-d4	(70-130)	(70-130)

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: BO31F
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: 1A

ANALYTICAL RESOURCES INCORPORA

QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 13:50
Date analyzed: 05/08/00 18:57
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 6.8

CAS Number	Analyte	ug/kg
108-95-2	Phenol	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
106-44-5	4-Methylphenol	19 U
67-72-1	Hexachloroethane	19 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	Naphthalene	19 U
87-68-3	Hexachlorobutadiene	19 U
91-57-6	2-Methylnaphthalene	19 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
83-32-9	Acenaphthene	19 U
132-64-9	Dibenzofuran	19 U
84-66-2	Diethylphthalate	19 U
86-73-7	Fluorene	19 U
86-30-6	N-Nitrosodiphenylamine	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	Phenanthrene	19 U
120-12-7	Anthracene	19 U
84-74-2	Di-n-Butylphthalate	19 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31F
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized: AB
Reported: 05/09/00

Sample No: 1A

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 18:57
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 52.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 6.8

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	23
129-00-0	Pyrene	19 U
85-68-7	Butylbenzylphthalate	19 U
56-55-3	Benzo(a)anthracene	19 U
117-81-7	bis(2-Ethylhexyl)phthalate	21
218-01-9	Chrysene	19 U
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	Benzo(b)fluoranthene	19 U
207-08-9	Benzo(k)fluoranthene	19 U
50-32-8	Benzo(a)pyrene	19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19 U
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	Benzo(g,h,i)perylene	19 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	43.3%	d5-Phenol	49.5%
2-Fluorobiphenyl	53.9%	2-Fluorophenol	50.0%
d14-p-Terphenyl	50.7%	2,4,6-Tribromophenol	52.9%
d4-1,2-Dichlorobenzene	32.6%	d4-2-Chlorophenol	47.9%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Sample No: 1B

ANALYTICAL RESOURCES INCORPORAT

Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment
Data Release Authorized: MB
Reported: 05/09/00

QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 19:44
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 55.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 15.3%
pH: 7.1

CAS Number	Analyte	ug/kg
108-95-2	Phenol	18 U
541-73-1	1,3-Dichlorobenzene	18 U
106-46-7	1,4-Dichlorobenzene	18 U
100-51-6	Benzyl Alcohol	18 U
95-50-1	1,2-Dichlorobenzene	18 U
95-48-7	2-Methylphenol	18 U
106-44-5	4-Methylphenol	18 U
67-72-1	Hexachloroethane	18 U
105-67-9	2,4-Dimethylphenol	18 U
65-85-0	Benzoic Acid	180 U
120-82-1	1,2,4-Trichlorobenzene	18 U
91-20-3	Naphthalene	18 U
87-68-3	Hexachlorobutadiene	18 U
91-57-6	2-Methylnaphthalene	18 U
131-11-3	Dimethylphthalate	18 U
208-96-8	Acenaphthylene	18 U
83-32-9	Acenaphthene	18 U
132-64-9	Dibenzofuran	18 U
84-66-2	Diethylphthalate	18 U
86-73-7	Fluorene	18 U
86-30-6	N-Nitrosodiphenylamine	18 U
118-74-1	Hexachlorobenzene	18 U
87-86-5	Pentachlorophenol	91 U
85-01-8	Phenanthrene	18 U
120-12-7	Anthracene	18 U
84-74-2	Di-n-Butylphthalate	18 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 2 of 2
Lab Sample ID: BO31G
LIMS ID: 00-6162
Matrix: Sediment
Data Release Authorized: AP
Reported: 05/09/00

Sample No: 1B

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 19:44
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 55.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 15.3%
pH: 7.1

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	18 U
129-00-0	Pyrene	18 U
85-68-7	Butylbenzylphthalate	18 U
56-55-3	Benzo(a)anthracene	18 U
117-81-7	bis(2-Ethylhexyl)phthalate	18 U
218-01-9	Chrysene	18 U
117-84-0	Di-n-Octyl phthalate	18 U
205-99-2	Benzo(b)fluoranthene	18 U
207-08-9	Benzo(k)fluoranthene	18 U
50-32-8	Benzo(a)pyrene	18 U
193-39-5	Indeno(1,2,3-cd)pyrene	18 U
53-70-3	Dibenz(a,h)anthracene	18 U
191-24-2	Benzo(g,h,i)perylene	18 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	50.8%	d5-Phenol	54.4%
2-Fluorobiphenyl	60.2%	2-Fluorophenol	58.6%
d14-p-Terphenyl	65.1%	2,4,6-Tribromophenol	57.4%
d4-1,2-Dichlorobenzene	47.4%	d4-2-Chlorophenol	56.8%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31H
LIMS ID: 00-6163
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: 2A

ANALYTICAL RESOURCES INCORPORAT

QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 20:30
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 52.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.1

CAS Number	Analyte	ug/kg
108-95-2	Phenol	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
106-44-5	4-Methylphenol	19 U
67-72-1	Hexachloroethane	19 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	Naphthalene	19 U
87-68-3	Hexachlorobutadiene	19 U
91-57-6	2-Methylnaphthalene	19 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
83-32-9	Acenaphthene	19 U
132-64-9	Dibenzofuran	19 U
84-66-2	Diethylphthalate	19 U
86-73-7	Fluorene	19 U
86-30-6	N-Nitrosodiphenylamine	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	96 U
85-01-8	Phenanthrene	19 U
120-12-7	Anthracene	19 U
84-74-2	Di-n-Butylphthalate	19 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31H
LIMS ID: 00-6163
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: 2A

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 20:30
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 52.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 48.0%
pH: 7.1

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	22
129-00-0	Pyrene	19 U
85-68-7	Butylbenzylphthalate	19 U
56-55-3	Benzo(a)anthracene	19 U
117-81-7	bis(2-Ethylhexyl)phthalate	20
218-01-9	Chrysene	19 U
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	Benzo(b)fluoranthene	19 U
207-08-9	Benzo(k)fluoranthene	19 U
50-32-8	Benzo(a)pyrene	19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19 U
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	Benzo(g,h,i)perylene	19 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	49.5%	d5-Phenol	49.3%
2-Fluorobiphenyl	56.6%	2-Fluorophenol	50.9%
d14-p-Terphenyl	52.3%	2,4,6-Tribromophenol	50.1%
d4-1,2-Dichlorobenzene	35.8%	d4-2-Chlorophenol	50.7%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: [signature]
Reported: 05/09/00

Sample No: 2B

ANALYTICAL RESOURCES INCORPORAT

QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 21:18
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
108-95-2	Phenol	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
106-44-5	4-Methylphenol	20 U
67-72-1	Hexachloroethane	20 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	Naphthalene	20 U
87-68-3	Hexachlorobutadiene	20 U
91-57-6	2-Methylnaphthalene	20 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
83-32-9	Acenaphthene	20 U
132-64-9	Dibenzofuran	20 U
84-66-2	Diethylphthalate	20 U
86-73-7	Fluorene	20 U
86-30-6	N-Nitrosodiphenylamine	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	99 U
85-01-8	Phenanthrene	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: 2B

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 21:18
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	20 U
129-00-0	Pyrene	20 U
85-68-7	Butylbenzylphthalate	20 U
56-55-3	Benzo(a)anthracene	20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20 U
218-01-9	Chrysene	20 U
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	Benzo(b)fluoranthene	20 U
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	60.7%	d5-Phenol	65.7%
2-Fluorobiphenyl	79.6%	2-Fluorophenol	56.9%
d14-p-Terphenyl	86.2%	2,4,6-Tribromophenol	87.7%
d4-1,2-Dichlorobenzene	40.2%	d4-2-Chlorophenol	63.4%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31I-MS
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: BVJ
Reported: 05/09/00

Sample No: 2B
Matrix Spike

ANALYTICAL RESOURCES INCORPORAT

QC Report No: BO31-Herrera Environmental Cons
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 22:05
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
108-95-2	Phenol	---
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	---
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
106-44-5	4-Methylphenol	20 U
67-72-1	Hexachloroethane	20 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
120-82-1	1,2,4-Trichlorobenzene	---
91-20-3	Naphthalene	20 U
87-68-3	Hexachlorobutadiene	20 U
91-57-6	2-Methylnaphthalene	20 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
83-32-9	Acenaphthene	---
132-64-9	Dibenzofuran	20 U
84-66-2	Diethylphthalate	20 U
86-73-7	Fluorene	20 U
86-30-6	N-Nitrosodiphenylamine	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	---
85-01-8	Phenanthrene	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31I-MS
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: GMS
Reported: 05/09/00

Sample No: 2B
Matrix Spike

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 22:05
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	20 U
129-00-0	Pyrene	---
85-68-7	Butylbenzylphthalate	20 U
56-55-3	Benzo(a)anthracene	20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20 U
218-01-9	Chrysene	20 U
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	Benzo(b)fluoranthene	20 U
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	72.1%	d5-Phenol	74.0%
2-Fluorobiphenyl	74.4%	2-Fluorophenol	77.3%
d14-p-Terphenyl	76.2%	2,4,6-Tribromophenol	74.1%
d4-1,2-Dichlorobenzene	59.8%	d4-2-Chlorophenol	77.4%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: BO31I-MSD
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: 2B
Matrix Spike Dup

ANALYTICAL RESOURCES INCORPORAT

QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 22:51
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
108-95-2	Phenol	---
541-73-1	1,3-Dichlorobenzene	20 U
106-46-7	1,4-Dichlorobenzene	---
100-51-6	Benzyl Alcohol	20 U
95-50-1	1,2-Dichlorobenzene	20 U
95-48-7	2-Methylphenol	20 U
106-44-5	4-Methylphenol	20 U
67-72-1	Hexachloroethane	20 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
120-82-1	1,2,4-Trichlorobenzene	---
91-20-3	Naphthalene	20 U
87-68-3	Hexachlorobutadiene	20 U
91-57-6	2-Methylnaphthalene	20 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
83-32-9	Acenaphthene	---
132-64-9	Dibenzofuran	20 U
84-66-2	Diethylphthalate	20 U
86-73-7	Fluorene	20 U
86-30-6	N-Nitrosodiphenylamine	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	---
85-01-8	Phenanthrene	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31I-MSD
~~LIMS ID: 00-6164~~
Matrix: Sediment
Data Release Authorized: DM
Reported: 05/09/00

Sample No: 2B
Matrix Spike Dup

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 22:51
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	20 U
129-00-0	Pyrene	---
85-68-7	Butylbenzylphthalate	20 U
56-55-3	Benzo(a)anthracene	20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20 U
218-01-9	Chrysene	20 U
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	Benzo(b)fluoranthene	20 U
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	52.0%	d5-Phenol	67.8%
2-Fluorobiphenyl	72.7%	2-Fluorophenol	61.8%
d14-p-Terphenyl	81.2%	2,4,6-Tribromophenol	82.5%
d4-1,2-Dichlorobenzene	41.0%	d4-2-Chlorophenol	63.4%

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

Sample No: 3A

ANALYTICAL RESOURCES INCORPORAT

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment
Data Release Authorized: [signature]
Reported: 05/09/00

QC Report No: BO31-Herrera Environmental Cons
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 23:38
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 53.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 24.0%
pH: 7.0

CAS Number	Analyte	ug/kg
108-95-2	Phenol	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
106-44-5	4-Methylphenol	19 U
67-72-1	Hexachloroethane	19 U
105-67-9	2,4-Dimethylphenol	19 U
65-85-0	Benzoic Acid	190 U
120-82-1	1,2,4-Trichlorobenzene	19 U
91-20-3	Naphthalene	19 U
87-68-3	Hexachlorobutadiene	19 U
91-57-6	2-Methylnaphthalene	19 U
131-11-3	Dimethylphthalate	19 U
208-96-8	Acenaphthylene	19 U
83-32-9	Acenaphthene	19 U
132-64-9	Dibenzofuran	19 U
84-66-2	Diethylphthalate	19 U
86-73-7	Fluorene	19 U
86-30-6	N-Nitrosodiphenylamine	19 U
118-74-1	Hexachlorobenzene	19 U
87-86-5	Pentachlorophenol	94 U
85-01-8	Phenanthrene	19 U
120-12-7	Anthracene	19 U
84-74-2	Di-n-Butylphthalate	19 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Sample No: 3A

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment
Data Release Authorized: JM3
Reported: 05/09/00

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 23:38
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 53.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 24.0%
pH: 7.0

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	19 U
129-00-0	Pyrene	19 U
85-68-7	Butylbenzylphthalate	19 U
56-55-3	Benzo(a)anthracene	19 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	20
218-01-9	Chrysene	19 U
117-84-0	Di-n-Octyl phthalate	19 U
205-99-2	Benzo(b)fluoranthene	19 U
207-08-9	Benzo(k)fluoranthene	19 U
50-32-8	Benzo(a)pyrene	19 U
193-39-5	Indeno(1,2,3-cd)pyrene	19 U
53-70-3	Dibenz(a,h)anthracene	19 U
191-24-2	Benzo(g,h,i)perylene	19 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	60.2%	d5-Phenol	66.8%
2-Fluorobiphenyl	71.4%	2-Fluorophenol	67.7%
d14-p-Terphenyl	78.0%	2,4,6-Tribromophenol	77.3%
d4-1,2-Dichlorobenzene	49.0%	d4-2-Chlorophenol	65.9%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31MB
~~LIMS ID: 00-6161~~
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

Sample No: Method Blank
QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

ANALYTICAL RESOURCES INCORPORA

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 16:38
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.0 g-dry-wt Equi
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: NA
pH: NA

CAS Number	Analyte	ug/kg
108-95-2	Phenol	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
106-44-5	4-Methylphenol	20 U
67-72-1	Hexachloroethane	20 U
105-67-9	2,4-Dimethylphenol	20 U
65-85-0	Benzoic Acid	200 U
120-82-1	1,2,4-Trichlorobenzene	20 U
91-20-3	Naphthalene	20 U
87-68-3	Hexachlorobutadiene	20 U
91-57-6	2-Methylnaphthalene	20 U
131-11-3	Dimethylphthalate	20 U
208-96-8	Acenaphthylene	20 U
83-32-9	Acenaphthene	20 U
132-64-9	Dibenzofuran	20 U
84-66-2	Diethylphthalate	20 U
86-73-7	Fluorene	20 U
86-30-6	N-Nitrosodiphenylamine	20 U
118-74-1	Hexachlorobenzene	20 U
87-86-5	Pentachlorophenol	100 U
85-01-8	Phenanthrene	20 U
120-12-7	Anthracene	20 U
84-74-2	Di-n-Butylphthalate	20 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31MB
~~LIMS ID: 00-6161~~
Matrix: Sediment
Data Release Authorized:
Reported: 05/09/00

ANALYTICAL RESOURCES INCORPORATED

Sample No: Method Blank
QC Report No: BO31-Herrera Environmental Consultant
~~Project:~~ Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Date extracted: 05/03/00 10:50
Date analyzed: 05/08/00 16:38
Instrument: FINN2
GPC Cleanup: NO

Sample Amount: 50.0 g-dry-wt Equiv
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: NA
pH: NA

CAS Number	Analyte	ug/kg
206-44-0	Fluoranthene	20 U
129-00-0	Pyrene	20 U
85-68-7	Butylbenzylphthalate	20 U
56-55-3	Benzo(a)anthracene	20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20 U
218-01-9	Chrysene	20 U
117-84-0	Di-n-Octyl phthalate	20 U
205-99-2	Benzo(b)fluoranthene	20 U
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	66.5%	d5-Phenol	66.3%
2-Fluorobiphenyl	66.0%	2-Fluorophenol	74.2%
d14-p-Terphenyl	76.0%	2,4,6-Tribromophenol	51.5%
d4-1,2-Dichlorobenzene	62.1%	d4-2-Chlorophenol	67.9%

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS
Page 1 of 2
Lab Sample ID: BO31-SRM
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: MS
Reported: 05/09/00

Sample No: Std Reference SQ-1
QC Report No: BO31-Herrera Environmental Con
Project: Capitol Lake 1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

ANALYTICAL RESOURCES INCORPORAT

Date extracted: 05/03/00
Date analyzed: 05/08/00
Instrument: finn2
GPC Cleanup: NO

Sample Amount: 35.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.2%
pH: 6.0

CAS Number	Analyte	ug/kg
108-95-2	Phenol	28 U
541-73-1	1,3-Dichlorobenzene	28 U
106-46-7	1,4-Dichlorobenzene	28 U
100-51-6	Benzyl Alcohol	28 U
95-50-1	1,2-Dichlorobenzene	28 U
95-48-7	2-Methylphenol	28 U
106-44-5	**4-Methylphenol**	**38**
67-72-1	Hexachloroethane	28 U
105-67-9	2,4-Dimethylphenol	28 U
65-85-0	**Benzoic Acid**	**460**
120-82-1	1,2,4-Trichlorobenzene	28 U
91-20-3	**Naphthalene**	**61**
87-68-3	Hexachlorobutadiene	28 U
91-57-6	**2-Methylnaphthalene**	**99**
131-11-3	Dimethylphthalate	28 U
208-96-8	Acenaphthylene	28 U
83-32-9	**Acenaphthene**	**92**
132-64-9	Dibenzofuran	28 U
84-66-2	Diethylphthalate	28 U
86-73-7	**Fluorene**	**89**
86-30-6	N-Nitrosodiphenylamine	28 U
118-74-1	Hexachlorobenzene	28 U
87-86-5	**Pentachlorophenol**	**140**
85-01-8	**Phenanthrene**	**160**
120-12-7	**Anthracene**	**88**
84-74-2	Di-n-Butylphthalate	28 U

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by GC/MS

Lab Sample ID: BO31-SRM
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: JMB
Reported: 05/09/00

Sample No: Std Reference SQ-1

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake 1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/08/00
Instrument: finn2
GPC Cleanup: NO

Sample Amount: 35.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1:1
Percent Moisture: 40.2%
pH: 6.0

CAS Number	Analyte	ug/kg
206-44-0	**Fluoranthene**	250
129-00-0	**Pyrene**	150
85-68-7	Butylbenzylphthalate	28 U
56-55-3	**Benzo(a)anthracene**	150
117-81-7	**bis(2-Ethylhexyl)phthalate**	120
218-01-9	**Chrysene**	150
117-84-0	Di-n-Octyl phthalate	28 U
205-99-2	**Benzo(b)fluoranthene**	150
207-08-9	Benzo(k)fluoranthene	28 U
50-32-8	**Benzo(a)pyrene**	150
193-39-5	Indeno(1,2,3-cd)pyrene	28 U
53-70-3	**Dibenz(a,h)anthracene**	98
191-24-2	**Benzo(g,h,i)perylene**	98

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	70.1%	d5-Phenol	79.3%
2-Fluorobiphenyl	80.7%	2-Fluorophenol	74.3%
d14-p-Terphenyl	86.2%	2,4,6-Tribromophenol	91.8%
d4-1,2-Dichlorobenzene	55.8%	d4-2-Chlorophenol	78.0%

SOIL SEMIVOLATILE SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: BC31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Client ID	NBZ	FBP	TPH	PHL	2FP	TBP	2CP	DCB
Method Blank	66.5%	66.0%	76.0%	66.3%	74.2%	51.5%	67.9%	62.1%
Lab Control	83.6%	78.8%	79.5%	75.0%	81.4%	61.2%	74.0%	69.7%
1A	43.3%	53.9%	50.7%	49.5%	50.0%	52.9% *	47.9%	32.6%
1B	50.8%	60.2%	65.1%	54.4%	58.6%	57.4%	56.8%	47.4%
2A	49.5%	56.6%	52.3%	49.3%	50.9%	50.1% *	50.7%	35.8%
SRM-SQ-1	70.1%	80.7%	86.2%	79.3%	74.3%	91.8%	78.0%	55.8%
2B	60.7%	79.6%	86.2%	65.7%	56.9%	87.7%	63.4%	40.2%
2B-MS	72.1%	74.4%	76.2%	74.0%	77.3%	74.1%	77.4%	59.8%
2B-MSD	52.0%	72.7%	81.2%	67.8%	61.8%	82.5%	63.4%	41.0%
3A	60.2%	71.4%	78.0%	66.8%	67.7%	77.3%	65.9%	49.0%

		LCS/MB LIMITS	QC LIMITS
(NBZ)	= Nitrobenzene-d5	(20-120)	(35-120)
(FBP)	= 2-Fluorobiphenyl	(29-120)	(49-120)
(TPH)	= p-Terphenyl-d14	(45-123)	(44-131)
(PHL)	= Phenol-d5	(17-120)	(37-120)
(2FP)	= 2-Fluorophenol	(23-120)	(39-120)
(TBP)	= 2,4,6-Tribromophenol	(17-134)	(54-126)
(2CP)	= 2-Chlorophenol-d4	(21-120)	(36-120)
(DCB)	= 1,2-Dichlorobenzene-d4	(30-120)	(29-120)

\# Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS
Page 1 of 1
Lab Sample ID: BO31SB
LIMS ID: 00-6161
Matrix: Sediment

ANALYTICAL RESOURCES INCORPORATED

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized:
Reported: 05/09/00

LABCRATORY CONTROL SAMPLE
Date extracted: 05/03/00
Date analyzed: 05/08/00

CONSTITUENT	SPIKE VALUE	SPIKE ADDED	% RECOVERY
Phenol	576	750	76.8%
1,4-Dichlorobenzene	332	500	66.4%
1,2,4-Trichlorobenzene	353	500	70.6%
Acenaphthene	320	500	64.0%
Pentachlorophenol	486	750	64.8%
Pyrene	288	500	57.6%

Lab Control Surrogate Recovery

d5-Nitrobenzene	83.6%	d5-Phenol	75.0%
2-Fluorobiphenyl	78.8%	2-Fluorophenol	81.4%
d14-p-Terphenyl	79.5%	2,4,6-Tribromophenol	61.2%
d4-1,2-Dichlorobenzene	69.7%	d4-2-Chlorophenol	74.0%

Values reported in ug/kg-dry-weight

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

ANALYTICAL RESOURCES INCORPORA

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment

Sample No: 2B
QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Received: 04/26/00

Data Release Authorized:
Reported: 05/09/00

MATRIX SPIKE/SPIKE DUPLICATE RECOVERY
Date extracted: 05/03/00
Date analyzed: 05/08/00

CONSTITUENT		SAMPLE VALUE	SPIKE VALUE	SPIKE ADDED	% RECOVERY	RPD
MATRIX SPIKE						
Phenol	<	19.8	561	744	75.4%	
1,4-Dichlorobenzene	<	19.8	264	496	53.2%	
1,2,4-Trichlorobenzene	<	19.8	327	496	65.9%	
Acenaphthene	<	19.8	319	496	64.3%	
Pentachlorophenol	<	99.2	106	744	14.2%	
Pyrene	<	19.8	269	496	54.2%	
MATRIX SPIKE DUPLICATE						
Phenol	<	19.8	536	744	72.0%	4.6%
1,4-Dichlorobenzene	<	19.8	220	496	44.4%	18%
1,2,4-Trichlorobenzene	<	19.8	271	496	54.6%	19%
Acenaphthene	<	19.8	340	496	68.5%	6.3%
Pentachlorophenol	<	99.2	235	744	31.6%	76%
Pyrene	<	19.8	331	496	66.7%	21%

Values reported in ug/kg-dry-weight

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET Sample No: Organic Wipe #1
Semivolatiles by GC/MS

Lab Sample ID: BO42F
LIMS ID: 00-6282
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Date extracted: 05/02/00
Date analyzed: 05/09/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
108-95-2	Phenol	0.5 U
541-73-1	1,3-Dichlorobenzene	0.5 U
106-46-7	1,4-Dichlorobenzene	0.5 U
100-51-6	Benzyl Alcohol	0.5 U
95-50-1	1,2-Dichlorobenzene	0.5 U
95-48-7	2-Methylphenol	0.5 U
106-44-5	4-Methylphenol	0.5 U
67-72-1	Hexachloroethane	0.5 U
105-67-9	2,4-Dimethylphenol	0.5 U
65-85-0	Benzoic Acid	5.0 U
120-82-1	1,2,4-Trichlorobenzene	0.5 U
91-20-3	Naphthalene	0.5 U
87-68-3	Hexachlorobutadiene	0.5 U
91-57-6	2-Methylnaphthalene	0.5 U
131-11-3	Dimethylphthalate	0.5 U
208-96-8	Acenaphthylene	0.5 U
83-32-9	Acenaphthene	0.5 U
132-64-9	Dibenzofuran	0.5 U
84-66-2	Diethylphthalate	0.5 U
86-73-7	Fluorene	0.5 U
86-30-6	N-Nitrosodiphenylamine	0.5 U
118-74-1	Hexachlorobenzene	0.5 U
87-86-5	Pentachlorophenol	2.5 U

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS

Sample No: Organic Wipe #1

Lab Sample ID: BO42F
LIMS ID: 00-6282
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Date extracted: 05/02/00
Date analyzed: 05/09/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
85-01-8	Phenanthrene	0.5 U
120-12-7	Anthracene	0.5 U
84-74-2	Di-n-Butylphthalate	0.5 U
206-44-0	Fluoranthene	0.5 U
129-00-0	Pyrene	0.5 U
85-68-7	Butylbenzylphthalate	0.5 U
56-55-3	Benzo(a)anthracene	0.5 U
117-81-7	bis(2-Ethylhexyl)phthalate	0.5 U
218-01-9	Chrysene	0.5 U
117-84-0	Di-n-Octyl phthalate	0.5 U
205-99-2	Benzo(b)fluoranthene	0.5 U
207-08-9	Benzo(k)fluoranthene	0.5 U
50-32-8	Benzo(a)pyrene	0.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.5 U
53-70-3	Dibenz(a,h)anthracene	0.5 U
191-24-2	Benzo(g,h,i)perylene	0.5 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	45.9%	d5-Phenol	59.5%
2-Fluorobiphenyl	52.2%	2-Fluorophenol	45.9%
d14-p-Terphenyl	66.1%	2,4,6-Tribromophenol	67.4%
d4-1,2-Dichlorobenzene	28.6%	d4-2-Chlorophenol	60.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET — Sample No: Organic Wipe #2
Semivolatiles by GC/MS

Lab Sample ID: B042G
LIMS ID: 00-6283
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: B042-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Date extracted: 05/02/00
Date analyzed: 05/09/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
108-95-2	Phenol	0.5 U
541-73-1	1,3-Dichlorobenzene	0.5 U
106-46-7	1,4-Dichlorobenzene	0.5 U
100-51-6	Benzyl Alcohol	0.5 U
95-50-1	1,2-Dichlorobenzene	0.5 U
95-48-7	2-Methylphenol	0.5 U
106-44-5	4-Methylphenol	0.5 U
67-72-1	Hexachloroethane	0.5 U
105-67-9	2,4-Dimethylphenol	0.5 U
65-85-0	Benzoic Acid	5.0 U
120-82-1	1,2,4-Trichlorobenzene	0.5 U
91-20-3	Naphthalene	0.5 U
87-68-3	Hexachlorobutadiene	0.5 U
91-57-6	2-Methylnaphthalene	0.5 U
131-11-3	Dimethylphthalate	0.5 U
208-96-8	Acenaphthylene	0.5 U
83-32-9	Acenaphthene	0.5 U
132-64-9	Dibenzofuran	0.5 U
84-66-2	Diethylphthalate	0.5 U
86-73-7	Fluorene	0.5 U
86-30-6	N-Nitrosodiphenylamine	0.5 U
118-74-1	Hexachlorobenzene	0.5 U
87-86-5	Pentachlorophenol	2.5 U

ANALYTICAL RESOURCES INCORPORA

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS

Sample No: Organic Wipe #2

Lab Sample ID: BO42G
LIMS ID: 00-6283
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/27/00

Date extracted: 05/02/00
Date analyzed: 05/09/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
85-01-8	Phenanthrene	0.5 U
120-12-7	Anthracene	0.5 U
84-74-2	Di-n-Butylphthalate	0.5 U
206-44-0	Fluoranthene	0.5 U
129-00-0	Pyrene	0.5 U
85-68-7	Butylbenzylphthalate	0.5 U
56-55-3	Benzo(a)anthracene	0.5 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	0.7
218-01-9	Chrysene	0.5 U
117-84-0	Di-n-Octyl phthalate	0.5 U
205-99-2	Benzo(b)fluoranthene	0.5 U
207-08-9	Benzo(k)fluoranthene	0.5 U
50-32-8	Benzo(a)pyrene	0.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.5 U
53-70-3	Dibenz(a,h)anthracene	0.5 U
191-24-2	Benzo(g,h,i)perylene	0.5 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	83.3%	d5-Phenol	68.4%
2-Fluorobiphenyl	55.9%	2-Fluorophenol	52.4%
d14-p-Terphenyl	79.5%	2,4,6-Tribromophenol	54.4%
d4-1,2-Dichlorobenzene	44.8%	d4-2-Chlorophenol	72.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET **Sample No: Method Blank**
Semivolatiles by GC/MS

Lab Sample ID: B042F
LIMS ID: 00-6282
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: B042-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Date extracted: 05/02/00
Date analyzed: 05/05/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
108-95-2	Phenol	0.5 U
541-73-1	1,3-Dichlorobenzene	0.5 U
106-46-7	1,4-Dichlorobenzene	0.5 U
100-51-6	Benzyl Alcohol	0.5 U
95-50-1	1,2-Dichlorobenzene	0.5 U
95-48-7	2-Methylphenol	0.5 U
106-44-5	4-Methylphenol	0.5 U
67-72-1	Hexachloroethane	0.5 U
105-67-9	2,4-Dimethylphenol	0.5 U
65-85-0	Benzoic Acid	5.0 U
120-82-1	1,2,4-Trichlorobenzene	0.5 U
91-20-3	Naphthalene	0.5 U
87-68-3	Hexachlorobutadiene	0.5 U
91-57-6	2-Methylnaphthalene	0.5 U
131-11-3	Dimethylphthalate	0.5 U
208-96-8	Acenaphthylene	0.5 U
83-32-9	Acenaphthene	0.5 U
132-64-9	Dibenzofuran	0.5 U
84-66-2	Diethylphthalate	0.5 U
86-73-7	Fluorene	0.5 U
86-30-6	N-Nitrosodiphenylamine-	0.5 U
118-74-1	Hexachlorobenzene	0.5 U
87-86-5	Pentachlorophenol	2.5 U

ANALYTICAL RESOURCES INCORPORA

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS

Sample No: Method Blank

Lab Sample ID: B042F
LIMS ID: 00-6282
Matrix: Wipe
Data Release Authorized:
Reported: 05/10/00

QC Report No: B042-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Date extracted: 05/02/00
Date analyzed: 05/05/00
Instrument: finn8
GPC Cleanup: NO

Sample Amount: 1.00 Wipe
Final Extract Volume: 0.5 mL
Dilution Factor: 1:1

CAS Number	Analyte	ug/Sample
85-01-8	Phenanthrene	0.5 U
120-12-7	Anthracene	0.5 U
84-74-2	Di-n-Butylphthalate	0.5 U
206-44-0	Fluoranthene	0.5 U
129-00-0	Pyrene	0.5 U
85-68-7	Butylbenzylphthalate	0.5 U
56-55-3	Benzo(a)anthracene	0.5 U
117-81-7	bis(2-Ethylhexyl)phthalate	0.5 U
218-01-9	Chrysene	0.5 U
117-84-0	Di-n-Octyl phthalate	0.5 U
205-99-2	Benzo(b)fluoranthene	0.5 U
207-08-9	Benzo(k)fluoranthene	0.5 U
50-32-8	Benzo(a)pyrene	0.5 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.5 U
53-70-3	Dibenz(a,h)anthracene	0.5 U
191-24-2	Benzo(g,h,i)perylene	0.5 U

Semivolatiles Surrogate Recovery

d5-Nitrobenzene	111%	d5-Phenol	92.9%
2-Fluorobiphenyl	83.6%	2-Fluorophenol	86.9%
d14-p-Terphenyl	114%	2,4,6-Tribromophenol	84.1%
d4-1,2-Dichlorobenzene	55.9%	d4-2-Chlorophenol	88.6%

ANALYTICAL RESOURCES INCORPORATED

SOLID SAMPLES SEMIVOLATILE SURROGATE RECOVERY SUMMARY

Matrix: Wipe

QC Report No: B042-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Client ID	NBZ	FBP	TPH	PHL	2FP	TBP	2CP	DCB	TOT OUT
Method Blank	111%	83.6%	114%	92.9%	86.9%	84.1%	88.6%	55.9%	0
Spike Blank	77.2%	63.2%	80.8%	66.9%	68.0%	57.8%	67.6%	41.7%	0
Organic Wipe #1	45.9%	52.2%	66.1%	59.5%	45.9%	67.4%	60.7%	28.6%*	1
Organic Wipe #2	83.3%	55.9%	79.5%	68.4%	52.4%	54.4%	72.4%	44.8%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = Nitrobenzene-d5	(30-160)	(30-160)
(FBP) = 2-Fluorobiphenyl	(30-160)	(30-160)
(TPH) = p-Terphenyl-d14	(30-160)	(30-160)
(PHL) = Phenol-d5	(30-160)	(30-160)
(2FP) = 2-Fluorophenol	(30-160)	(30-160)
(TBP) = 2,4,6-Tribromophenol	(30-160)	(30-160)
(2CP) = 2-Chlorophenol-d4	(30-160)	(30-160)
(DCB) = 1,2-Dichlorobenzene-d4	(30-160)	(30-160)

\# Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

FORM-II SVOA-1

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by GC/MS

ANALYTICAL
RESOURCES
INCORPORAT

Lab Sample ID: BO42SB
LIMS ID: 00-6282
Matrix: Wipe

QC Report No: BO42-Herrera Environmental Consultant
Project: Capitol Lake
1384-4

Data Release Authorized:
Reported: 05/10/00

LABORATORY CONTROL SAMPLE
Date extracted: 05/02/00
Date analyzed: 05/05/00

LABORATORY CONTROL SAMPLE CONSTITUENT	SPIKE VALUE	SPIKE ADDED	% RECOVERY
Phenol	15.3	18.8	81.6%
1,4-Dichlorobenzene	7.11	12.5	56.9%
1,2,4-Trichlorobenzene	7.82	12.5	62.6%
Acenaphthene	8.68	12.5	69.4%
Pentachlorophenol	16.1	18.8	85.9%
Pyrene	7.74	12.5	61.9%

Spike Blank Surrogate Recovery

d5-Nitrobenzene	77.2%	d5-Phenol	66.9%
2-Fluorobiphenyl	63.2%	2-Fluorophenol	68.0%
d14-p-Terphenyl	80.8%	2,4,6-Tribromophenol	57.8%
d4-1,2-Dichlorobenzene	41.7%	d4-2-Chlorophenol	67.6%

Values reported in Total ug/Sample

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 1A

ANALYTICAL RESOURCES INCORPORATED

Lab Sample ID: BO31F
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized: CH
Reported: 05/11/00 5/11/0

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 47.9%
pH: 6.8

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	0.96 U
76-44-8	Heptachlor	0.96 U
309-00-2	Aldrin	0.96 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	1.9 U
72-54-8	4,4'-DDD	1.9 U
50-29-3	4,4'-DDT	1.9 U
57-74-9	gamma Chlordane	0.96 U
5103-71-9	alpha Chlordane	0.96 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	19 U
11096-82-5	Aroclor 1260	19 U
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	63.5%
Tetrachlorometaxylene	65.2%

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 1B

Lab Sample ID: B031G
LIMS ID: 00-6162
Matrix: Sediment
Data Release Authorized: CH
Reported: 05/11/00 5/11/0-

QC Report No: B031-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 15.3%
pH: 7.1

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	0.98 U
76-44-8	Heptachlor	0.98 U
309-00-2	Aldrin	0.98 U
60-57-1	Dieldrin	2.0 U
72-55-9	4,4'-DDE	2.0 U
72-54-8	4,4'-DDD	2.0 U
50-29-3	4,4'-DDT	2.0 U
57-74-9	gamma Chlordane	0.98 U
5103-71-9	alpha Chlordane	0.98 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	81.5%
Tetrachlorometaxylene	67.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 2A

Lab Sample ID: BO31H
LIMS ID: 00-6163
Matrix: Sediment
Data Release Authorized: clr
Reported: 05/11/00 SM/r

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
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: 48.0%
pH: 7.1

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	0.96 U
76-44-8	Heptachlor	0.96 U
309-00-2	Aldrin	0.96 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	1.9 U
72-54-8	4,4'-DDD	1.9 U
50-29-3	4,4'-DDT	2.3 Y
57-74-9	gamma Chlordane	0.96 U
5103-71-9	alpha Chlordane	0.96 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	19 U
11096-82-5	Aroclor 1260	19 U
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	62.0%
Tetrachlorometaxylene	62.5%

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 2B

Lab Sample ID: BO31I
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: CH
Reported: 05/11/00 SMA

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 27.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	0.92 U
76-44-8	Heptachlor	0.92 U
309-00-2	Aldrin	0.92 U
60-57-1	Dieldrin	1.8 U
72-55-9	4,4'-DDE	1.8 U
72-54-8	4,4'-DDD	1.8 U
50-29-3	4,4'-DDT	1.8 U
57-74-9	gamma Chlordane	0.92 U
5103-71-9	alpha Chlordane	0.92 U
12674-11-2	Aroclor 1016	18 U
53469-21-9	Aroclor 1242	18 U
12672-29-6	Aroclor 1248	18 U
11097-69-1	Aroclor 1254	18 U
11096-82-5	Aroclor 1260	18 U
11104-28-2	Aroclor 1221	37 U
11141-16-5	Aroclor 1232	18 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	77.0%
Tetrachlorometaxylene	69.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 2B
Matrix Spike

Lab Sample ID: BO31I-MS
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: CH
Reported: 05/11/00 GM

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 27.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	---
76-44-8	Heptachlor	---
309-00-2	Aldrin	---
60-57-1	Dieldrin	---
72-55-9	4,4'-DDE	1.8 U
72-54-8	4,4'-DDD	1.8 U
50-29-3	4,4'-DDT	---
57-74-9	gamma Chlordane	0.92 U
5103-71-9	alpha Chlordane	0.92 U
12674-11-2	Aroclor 1016	18 U
53469-21-9	Aroclor 1242	18 U
12672-29-6	Aroclor 1248	18 U
11097-69-1	Aroclor 1254	18 U
11096-82-5	Aroclor 1260	18 U
11104-28-2	Aroclor 1221	37 U
11141-16-5	Aroclor 1232	18 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	70.2%
Tetrachlorometaxylene	62.0%

ANALYTICAL
RESOURCES
INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 2B
Matrix Spike Dup

Lab Sample ID: BO31I-MSD
LIMS ID: 00-6164
Matrix: Sediment
Data Release Authorized: cH
Reported: 05/11/00 5/11/

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 27.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 22.5%
pH: 6.9

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	---
76-44-8	Heptachlor	---
309-00-2	Aldrin	---
60-57-1	Dieldrin	---
72-55-9	4,4'-DDE	1.8 U
72-54-8	4,4'-DDD	1.8 U
50-29-3	4,4'-DDT	---
57-74-9	gamma Chlordane	0.92 U
5103-71-9	alpha Chlordane	0.92 U
12674-11-2	Aroclor 1016	18 U
53469-21-9	Aroclor 1242	18 U
12672-29-6	Aroclor 1248	18 U
11097-69-1	Aroclor 1254	18 U
11096-82-5	Aroclor 1260	18 U
11104-28-2	Aroclor 1221	37 U
11141-16-5	Aroclor 1232	18 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	76.5%
Tetrachlorometaxylene	69.5%

FORM-1

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: 3A

Lab Sample ID: BO31J
LIMS ID: 00-6165
Matrix: Sediment
Data Release Authorized: CH
Reported: 05/11/00 SW/in

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: 04/25/00
Date Received: 04/26/00

Date extracted: 05/03/00
Date analyzed: 05/10/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 26.6 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: 24.0%
pH: 7.0

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	0.94 U
76-44-8	Heptachlor	0.94 U
309-00-2	Aldrin	0.94 U
60-57-1	Dieldrin	1.9 U
72-55-9	4,4'-DDE	1.9 U
72-54-8	4,4'-DDD	1.9 U
50-29-3	4,4'-DDT	1.9 U
57-74-9	gamma Chlordane	0.94 U
5103-71-9	alpha Chlordane	0.94 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	19 U
11096-82-5	Aroclor 1260	19 U
11104-28-2	Aroclor 1221	38 U
11141-16-5	Aroclor 1232	19 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	66.0%

ANALYTICAL RESOURCES INCORPORAT

ORGANICS ANALYSIS DATA SHEET
Pesticides/PCB by GC/ECD

Sample No: Method Blank

Lab Sample ID: BO31MB
LIMS ID: 00-6161
Matrix: Sediment
Data Release Authorized: CA
Reported: 05/11/00 5/11/0

QC Report No: BO31-Herrera Environmental Consultant
Project: Capitol Lake
1384-4
Date Sampled: NA
Date Received: NA

Date extracted: 05/03/00
Date analyzed: 05/09/00
GPC Cleanup: YES
Florisil: YES
Sulfur Cleanup: YES

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1:1
Percent Moisture: NA
pH: NA

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	1.0 U
76-44-8	Heptachlor	1.0 U
309-00-2	Aldrin	1.0 U
60-57-1	Dieldrin	2.0 U
72-55-9	4,4'-DDE	2.0 U
72-54-8	4,4'-DDD	2.0 U
50-29-3	4,4'-DDT	2.0 U
57-74-9	gamma Chlordane	1.0 U
5103-71-9	alpha Chlordane	1.0 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	84.5%
Tetrachlorometaxylene	75.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET — Sample No: SQ1
Pesticides/PCB by GC/ECD — STANDARD REFERENCE

Lab Sample ID: BO31SRM — QC Report No: BO31-Herrera Environmental Consultant
LIMS ID: 00-6164 — Project: Capitol Lake
Matrix: Sediment — 1384-4
Data Release Authorized: CH — Date Sampled: NA
Reported: 05/11/00 5/4/0 — Date Received: NA

Date extracted: 05/03/00 — Sample Amount: 15.0 g-dry-wt
Date analyzed: 05/10/00 — Final Extract Volume: 5.0 mL
GPC Cleanup: YES — Dilution Factor: 1:1
Florisil: YES — Percent Moisture: 40.2%
Sulfur Cleanup: YES

CAS Number	Analyte	ug/kg
58-89-9	gamma-BHC (Lindane)	2.6
76-44-8	Heptachlor	1.7 U
309-00-2	Aldrin	1.7 U
60-57-1	Dieldrin	3.3 U
72-55-9	4,4'-DDE	3.3 U
72-54-8	4,4'-DDD	4.3 Y
50-29-3	4,4'-DDT	3.3 U
57-74-9	gamma Chlordane	3.4 Y
5103-71-9	alpha Chlordane	7.6
12674-11-2	Aroclor 1016	33 U
53469-21-9	Aroclor 1242	33 U
12672-29-6	Aroclor 1248	33 U
11097-69-1	Aroclor 1254	190
11096-82-5	Aroclor 1260	33 U
11104-28-2	Aroclor 1221	67 U
11141-16-5	Aroclor 1232	33 U

Pesticide Surrogate Recovery

Decachlorobiphenyl	73.5%
Tetrachlorometaxylene	53.2%

ANALYTICAL RESOURCES INCORPORATED

SOIL PEST SURROGATE SUMMARY

Matrix: Sediment

QC Report No: BO31
Project: Capitol Lake
1384-4

LIMS ID	Lab ID	Client ID	DB5 TCMX #	DB5 DCBP #	TOT OUT
00-6161MB	050300MB	Method Blank	75.2%	84.5%	0
00-6161SB	050300SB	Lab Control	74.8%	85.8%	0
00-6161	BO31F	1A	65.2%	63.5%	0
00-6162	BO31G	1B	67.5%	81.5%	0
00-6163	BO31H	2A	62.5%	62.0%	0
00-6164	BO31I	2B	69.5%	77.0%	0
00-6164MS	BO31IMS	2B	62.0%	70.2%	0
00-6164MSD	BO31IMSD	2B	69.5%	76.5%	0
00-6164SRM	BO31SRM	SQ1	53.2%	73.5%	0
00-6165	BO31J	3A	66.0%	75.5%	0

	Control QC LIMITS	Sample QC LIMITS
(TCMX) = Tetrachloro-m-xylene	(52-104)	(40-116)
(DCBP) = Decachlorobiphenyl	(63-102)	(41-128)

\# Column to be used to flag recovery values

* Values outside of required QC limits

D Surrogate Compound diluted out

APPENDIX D

Rosa Environmental and Geotechnical Laboratory Report

REG Lab WMBE
Rosa Environmental & Geotechnical Laboratory, LLC

1001 SW Klickitat Way, Suite 107
Seattle, WA 98134
(206) 287-9122

May 8, 2000

Mr. Rob Zisette
Herrera Environmental, Inc.
2200 Sixth Avenue, Suite 601
Seattle, WA 98121

Subject: Capitol Lake; REGL Project No.: 1041-002

Dear Mr. Zisette

The samples from the referenced project were received for testing on April 26, 2000. The analyses were performed according to the respective ASTM procedure. The results of the analyses are discussed on the attached tables, plots, and narrative.

Please call me to discuss any questions, or comments you may have on the data or its presentation.

Best Regards,
Rosa Environmental & Geotechnical Laboratory, LLC.

Harold Benny
Quality Assurance Manager

REG Lab WMBE
Rosa Environmental & Geotechnical Laboratory, LLC

1001 SW Klickitat Way, Suite 107
Seattle, WA 98134
(206) 287-9122

Client: Herrera Environmental, Inc.	REGL Project No.: 1041-002
Client Project: Capitol Lake	Sample Batch No.: 1041-002-01

Case Narrative

1. Five samples were received for analysis on April 26, 2000 and were in good condition.
2. The specific gravity was measured according to ASTM D-854. During the elutriate test, described below, a magnetic stirrer was used to mix the samples. In each sample, bits of iron attached themselves to the magnetic stir bar. All of the samples had iron in them, to some degree, which accounts for the high specific gravity values obtained.
3. The Atterberg Limits were determined according to ASTM D-4318. Three of the samples were sandy and non-plastic. The remaining two samples were somewhat sandy but could be tested. Following the normal procedure, the liquid limit was re-run on oven dried material to determine if the second liquid limit was less than 75% of the original limit. If it is less than 75%, then the soil is classified as "organic." However, after oven drying, the samples were non-plastic, they slipped in the liquid limit cup regardless of moisture content.
4. The total volatile solids were determined according to PSEP methods. The samples were first oven dried, weighed, and then placed in a furnace at 440 C.
5. The grain size analysis was determined according to the PSEP method. A triplicate was run on sample 1A, and is reported in the QA Summary. For sample 1B the largest possible sample size was used, but the sample was mostly sand and did not meet the method requirement that at least 5 grams be used in the pipette portion of the analysis. Only 4.22 grams were in the pipette portion. The data for this sample should be evaluated carefully before it is used.
6. Standard elutriate tests were run according to USA Corps of Engineers methodology. A mixture of four parts lake water were mixed with one part of sediment (volume basis) and mixed for 30 minutes. A magnetic mixer was used. At the end of the test, the recovered magnet was covered with bits of iron. The mixture was allowed to settle for 60 minutes before the supernatant was removed by vacuum. The water was placed in sample bottles provided by Analytical Resources, which contained preservatives, if appropriate for the analysis. When sample 1A was poured into the total metals bottle, which contained nitric acid preservative, the suspended solids immediately flocculated and fell out of solution. Flocculation was also observed in the nitrate/nitrite bottle for this sample.
7. There were no other anomalies to the samples or testing.

Approved by: _____ Date: 5/4/00
Title: Laboratory Manager

1041-002

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorpora
Analytical Chemists and Consult
400 Ninth Avenue North
Seattle, WA 98109-4708
206-621-6490 206-621-7523 (f

Page 1 of 1

Turn Around Requested: ________

Report to: ML FISK	Proj Name: KENNECOTT				Analyses Requested										Notes/Commen
Company: ARI	Proj Number: CARIBOU LAKE														
Address:	Sampler:														
Phone:	Shipping Method:														
Fax:	AirBill:														
Sample ID	Sample Date	Sample Time	Sample Matrix	No Containers	SUBC										
1A 20260	4/25	1700	SED	2	X										
1B 61		1550													
2A 62		1600													
2B 63		1430													
3A 64		1830													
LAKE 65	4/25	1300		1 (archive)											

Relinquished: (Signature) [signature]	Relinquished: (Signature)	Relinquished: (Signature)	Special Instructions/Notes
Printed name: [illegible]	Printed name:	Printed name:	
Company: ARI	Company:	Company:	
Date: 4/26/10 Time:	Date: Time:	Date: Time:	
Received by: [signature]	Received by:	Received by:	
Printed name: MARIE ROSA	Printed name:	Printed name:	
Company: ARI	Company:	Company:	Number of Coolers:
			Cooler Temp(s):
Date: 4/26/10 Time: 1710	Date: Time:	Date: Time:	COC Seals Intact?
			Bottles Intact?

GRAIN SIZE ANALYSIS

Rosa Environmental Geotechnical Laboratory, LLC

Herrera Environmental
Project: Capitol Lake

Apparent Grain Size Distribution Summary
Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay		
Phi Size	> -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	< 10
Sieve Size (microns)	> #10 (2000)	10 to 18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0
1A A	0.0	0.4	5.8	21.6	17.6	7.2	7.9	12.7	12.4	4.3	3.6	2.8	3.6
1A B	0.1	0.3	6.1	21.9	17.4	7.4	8.3	11.5	12.0	5.0	3.5	2.2	4.5
1A C	0.0	0.5	5.9	21.8	17.5	7.1	8.2	12.2	11.0	5.0	3.5	2.4	4.8
1B	15.2	5.7	20.0	47.6	7.2	0.9	2.1	0.4	0.3	0.2	0.2	0.1	0.1
2A	5.2	1.2	7.6	14.7	11.6	10.7	6.5	13.0	12.7	5.4	3.9	2.3	5.0
2B	0.5	0.4	4.2	50.6	32.1	5.1	1.9	1.6	1.1	1.1	0.5	0.5	0.4
3A	0.3	0.2	3.9	50.8	32.6	4.8	2.3	1.8	1.1	0.9	0.6	0.4	0.3

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.

1041-002

Rosa Environmental Geotechnical Laboratory, LLC

Herrera Environmental
Project: Capitol Lake

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
1A A	100.0	100.0	100.0	99.6	93.8	72.1	54.6	47.3	39.4	26.7	14.3	10.0	6.4	3.6
1A B	100.0	100.0	99.9	99.6	93.5	71.6	54.2	46.8	38.5	27.1	15.1	10.1	6.6	4.5
1A C	100.0	100.0	100.0	99.5	93.6	71.8	54.3	47.2	39.0	26.8	15.7	10.7	7.2	4.8
1B	100.0	90.7	84.8	79.1	59.1	11.5	4.3	3.3	1.2	0.8	0.6	0.3	0.1	0.1
2A	100.0	95.5	94.8	93.5	86.0	71.2	59.7	49.0	42.4	29.4	16.7	11.3	7.3	5.0
2B	100.0	99.8	99.5	99.1	95.0	44.3	12.3	7.2	5.2	3.6	2.5	1.5	0.9	0.4
3A	100.0	99.9	99.7	99.5	95.6	44.8	12.2	7.4	5.1	3.3	2.3	1.4	0.8	0.3

Notes to the Testing:

1. Apparent grain size distributions according to PSEP protocols.

Rosa Environmental and Geotechnical Laboratory, LLC

QA SUMMARY

PROJECT:	Herrera Environmental	Project No.:	Capitol Lake
REGL Triplicate Sample ID:	20260	Batch No.:	1041-002-01
Client Triplicate Sample ID:	1A	Page:	1 of 1

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
1A A	100.0	100.0	100.0	99.6	93.8	72.1	54.6	47.3	39.4	26.7	14.3	10.0	6.4	3.6
1A B	100.0	100.0	99.9	99.6	93.5	71.6	54.2	46.8	38.5	27.1	15.1	10.1	6.6	4.5
1A C	100.0	100.0	100.0	99.5	93.6	71.8	54.3	47.2	39.0	26.8	15.7	10.7	7.2	4.8
AVE	NA	100.00	99.95	99.57	93.61	71.83	54.36	47.13	38.98	26.84	15.03	10.27	6.75	4.29
STDEV	NA	0.00	0.08	0.03	0.14	0.28	0.19	0.26	0.42	0.20	0.73	0.38	0.41	0.60
%RSD	NA	0.00	0.08	0.03	0.15	0.39	0.34	0.56	1.09	0.73	4.87	3.65	6.10	13.91

The Triplicate Applies To The Following Samples

REGL ID	Client ID	Date Sampled	Date Extracted	Date Complete	QA*
20260 A	1A A	4/25/00	4/28/00	5/5/00	100.6
20260 B	1A B	4/25/00	4/28/00	5/5/00	100.3
20260 C	1A C	4/25/00	4/28/00	5/5/00	100.2
20261	1B	4/25/00	4/28/00	5/5/00	101.7
20262	2A	4/25/00	4/28/00	5/5/00	97.4
20263	2B	4/25/00	4/28/00	5/5/00	99.5
20264	3A	4/25/00	4/28/00	5/5/00	99.9

* REGL Internal QA limits = 95-105%

Notes to the Testing:

1. See narrative for discussion of testing.

Rosa Environmental Geotechnical Laboratory, LLC

Herrera Environmentla
Project: Capitol Lake

PSEP Total Solids Analysis
Percent of Wet Weight

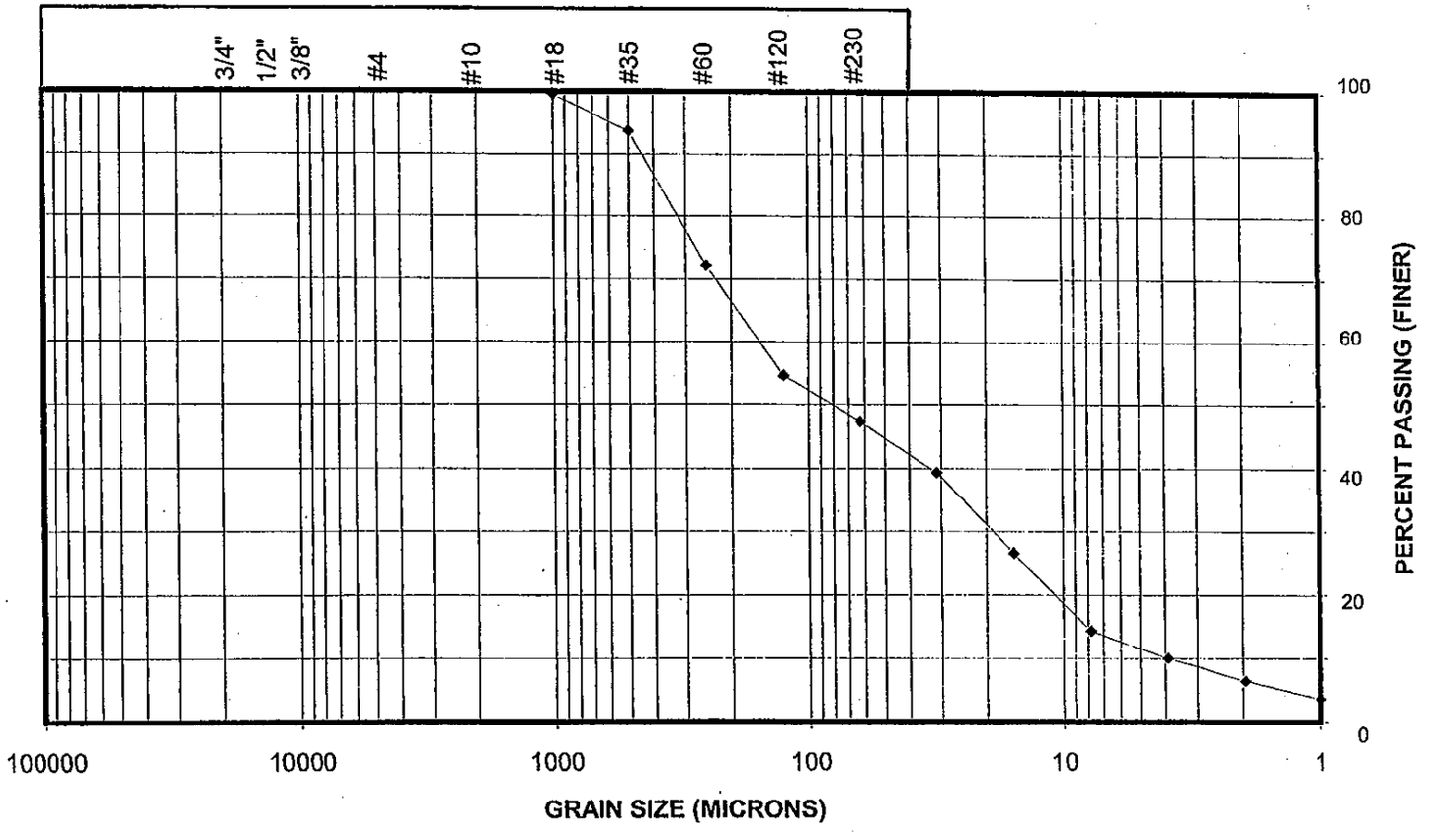
Sample No.	Total Solids (%)
1A A	53.0
1A B	53.3
1A C	53.5
1B	82.2
2A	53.0
2B	72.0
3A	72.4

Triplicate Average	53.2
Standard Deviation	0.27
%RSD	0.51

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 1A-A

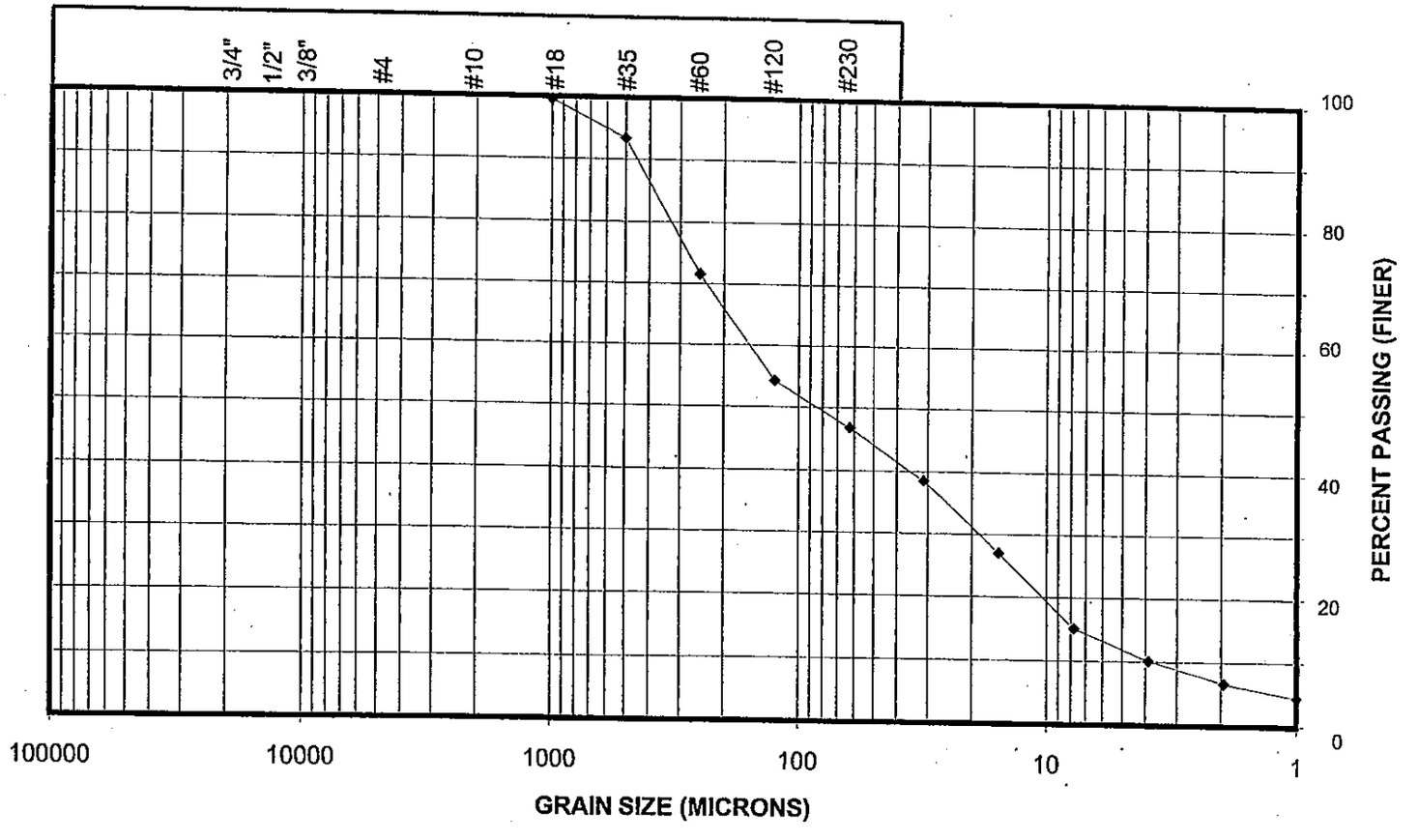


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 1A-B

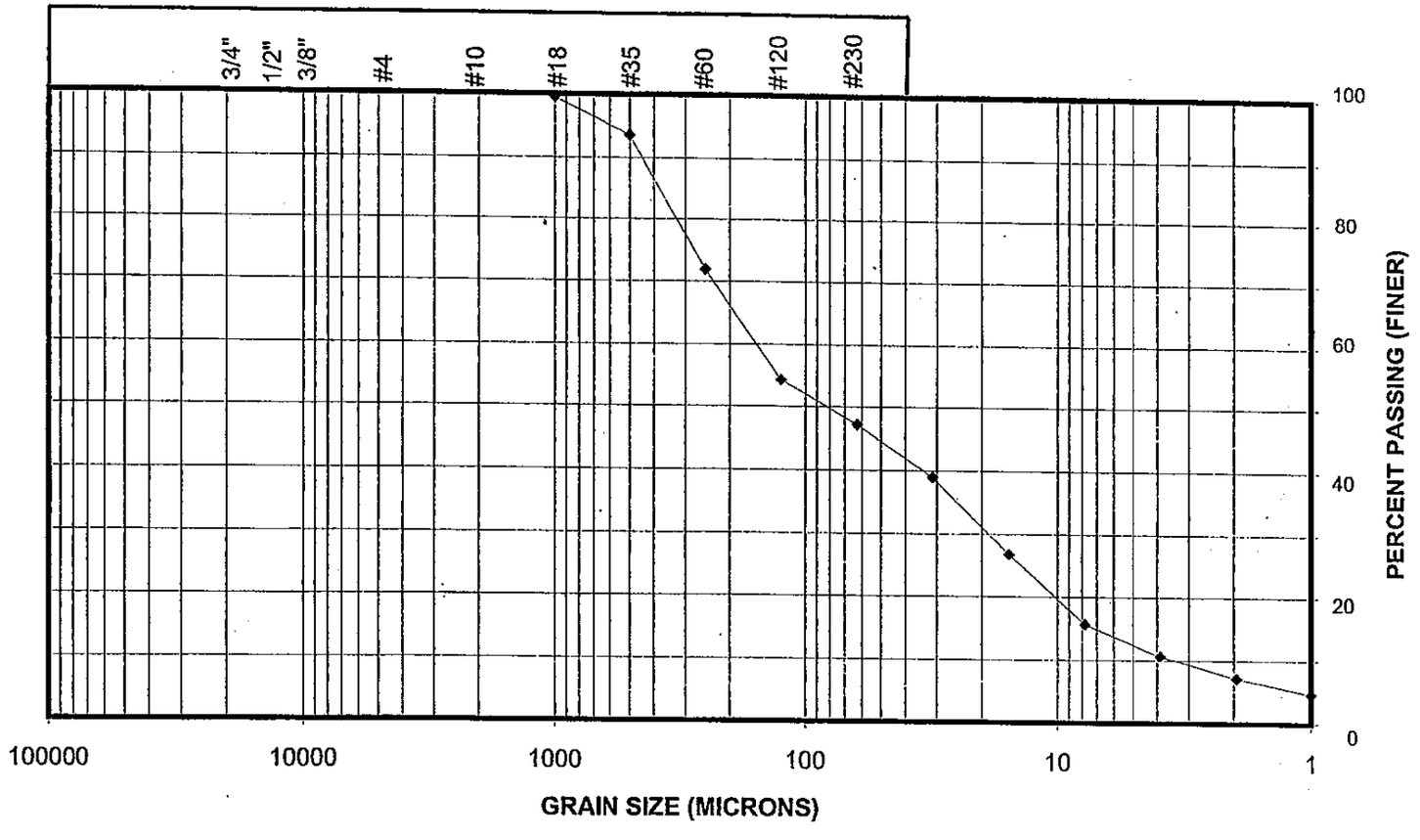


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 1A-C

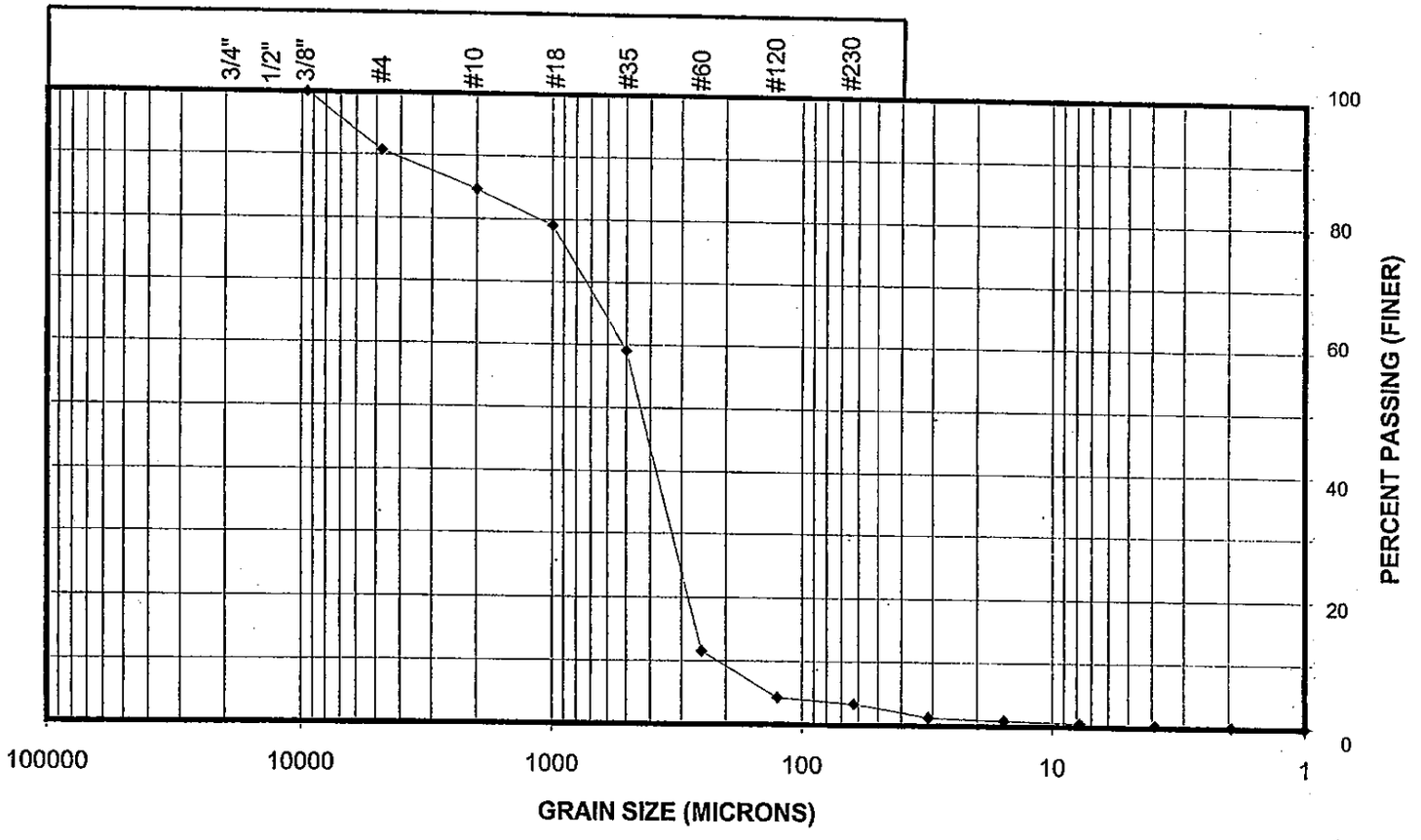


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 1B

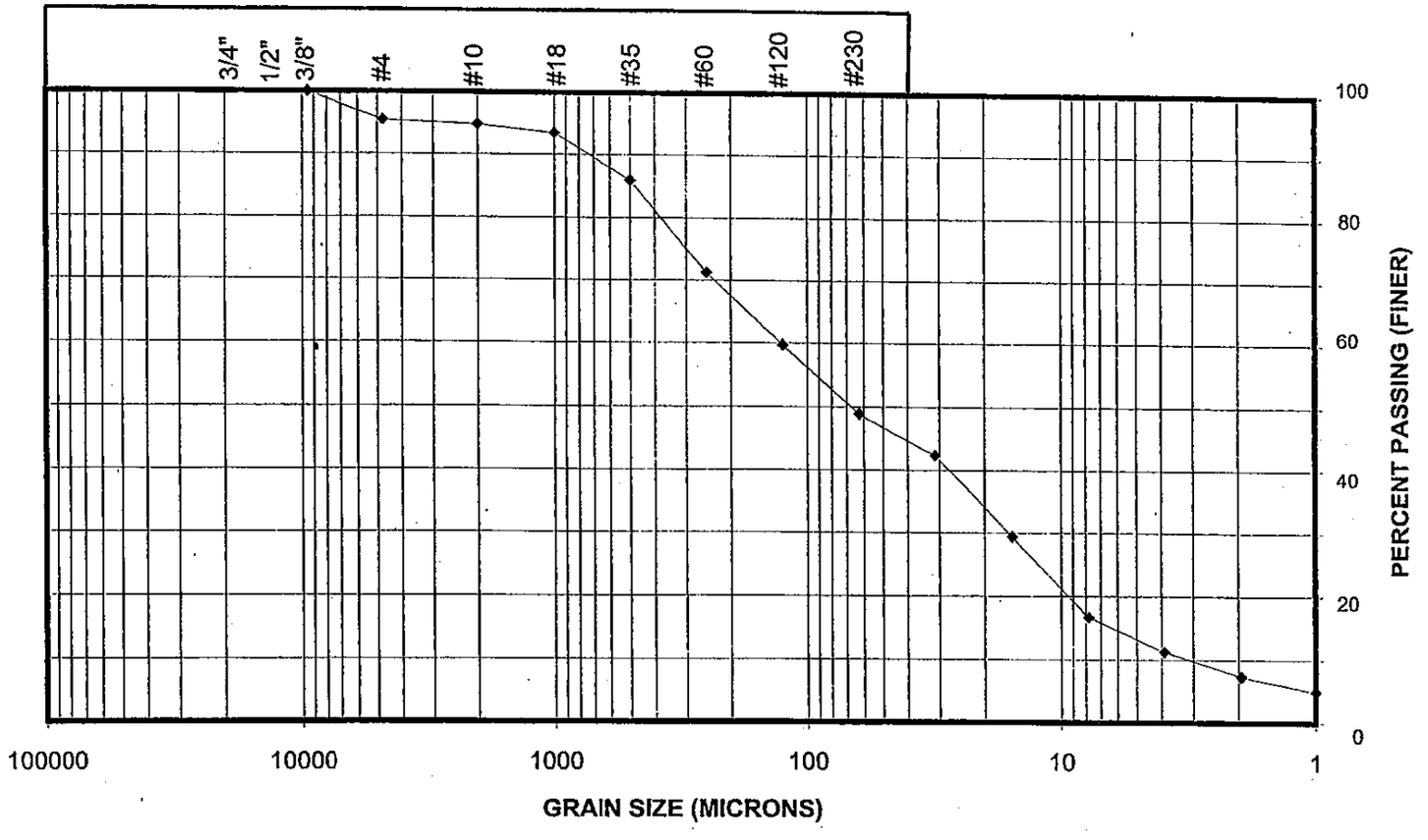


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY.

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 2A

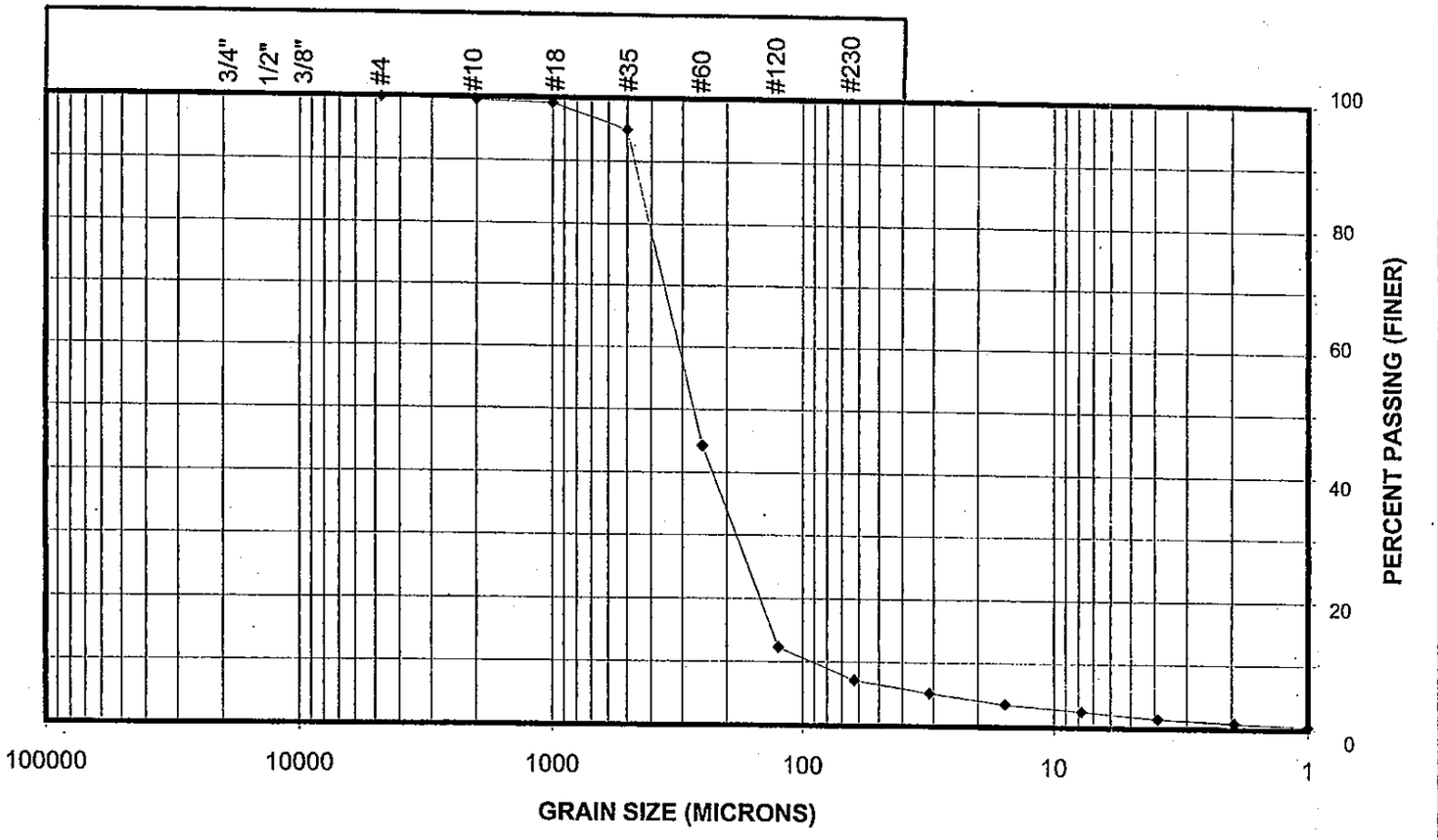


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 2B

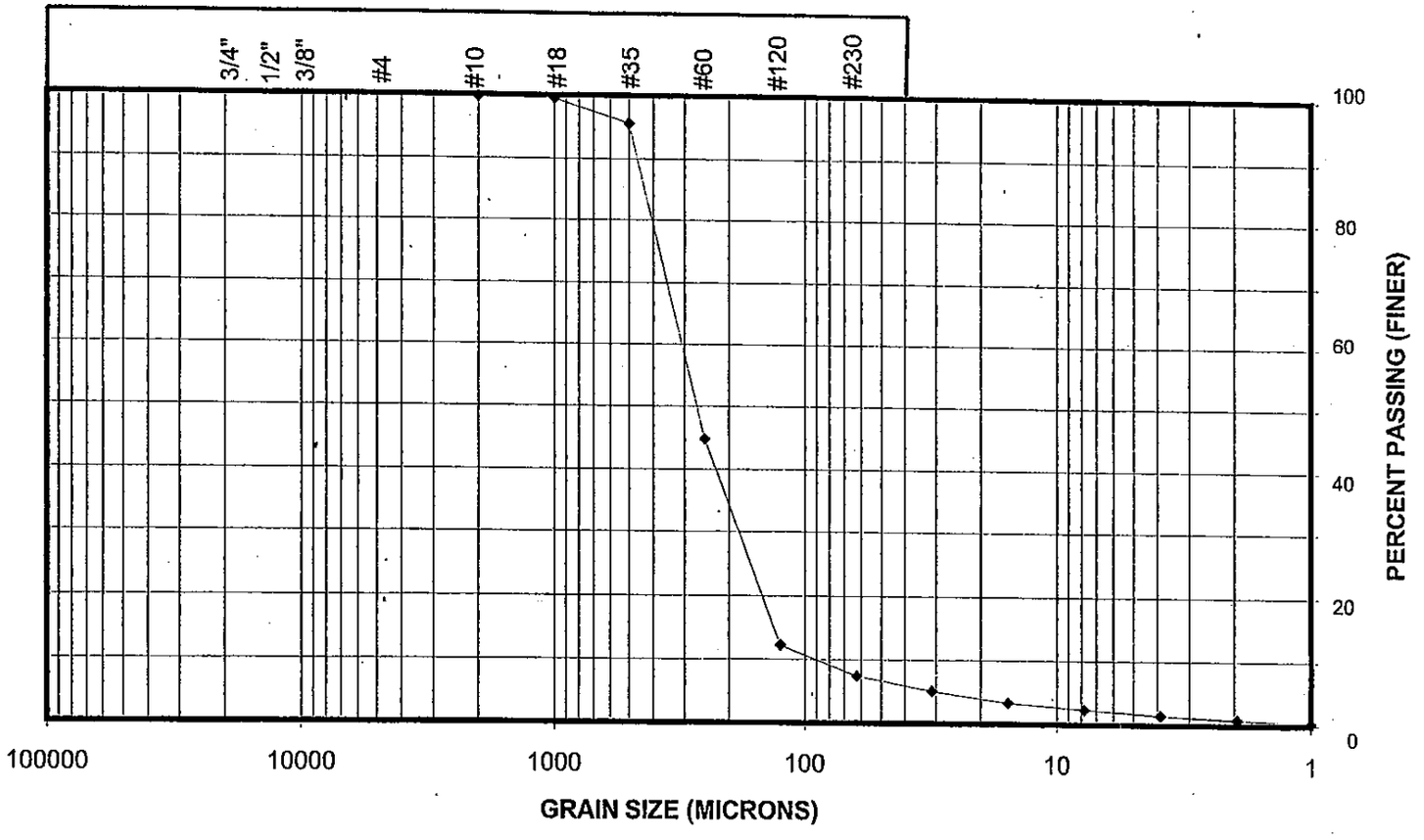


1041-002

ROSA ENVIRONMENTAL & GEOTECHNICAL LABORATORY

PSEP APPARENT GRAIN SIZE DISTRIBUTION

Project: Herrera Environmental
Sample No. 3A



1041-002

SPECIFIC GRAVITY

AND

TOTAL VOLATILE SOLIDS

Specific Gravity by ASTM D-854

Sample Identification	Specific Gravity
1A	2.70
1B	2.82
2A	2.60
2B	2.78
3A	2.74

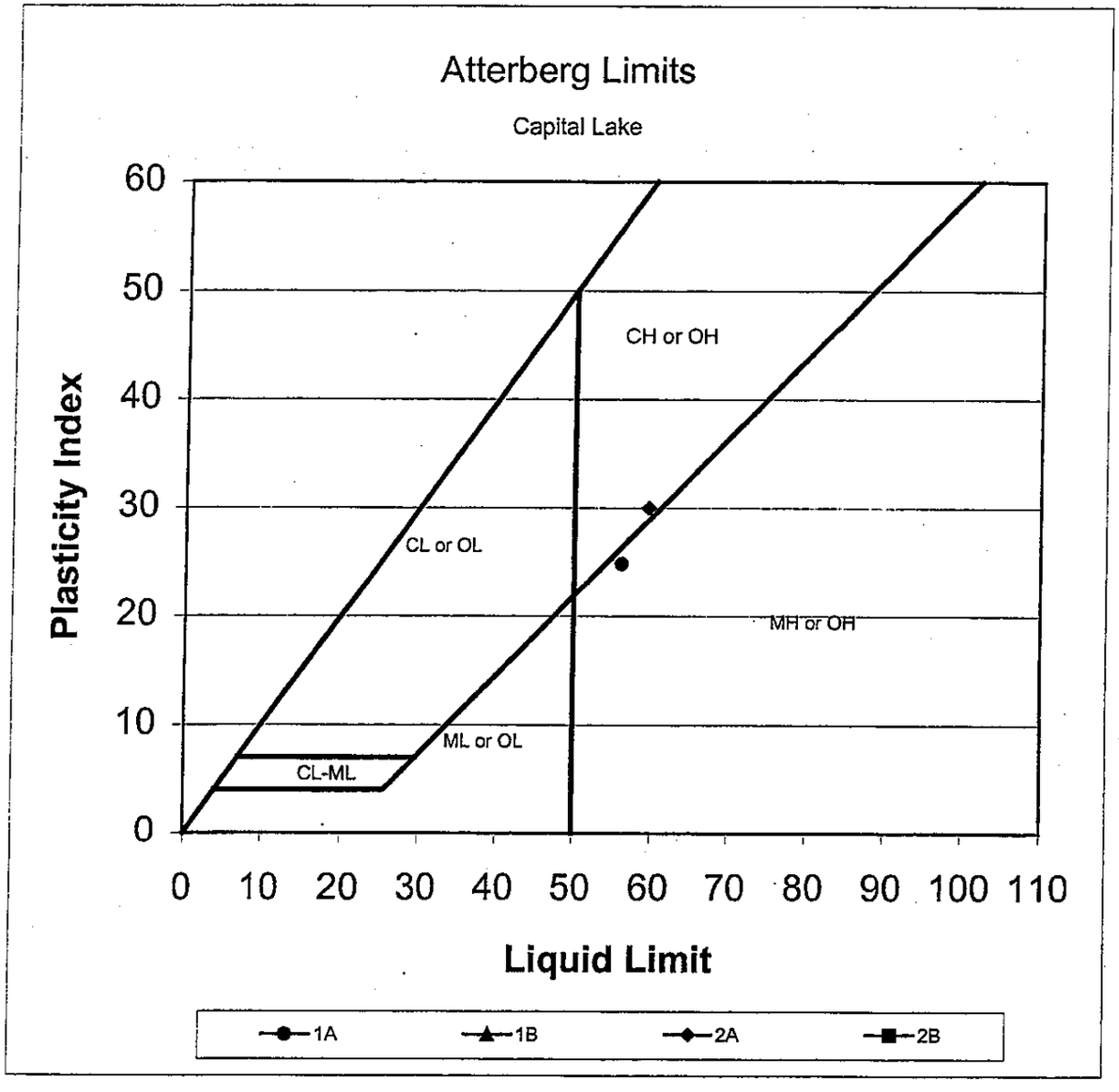
As noted on the narrative, iron particles were found (by use of a magnet) in all of the samples.

Moisture Content and Total Volatile Solids by PSEP Method

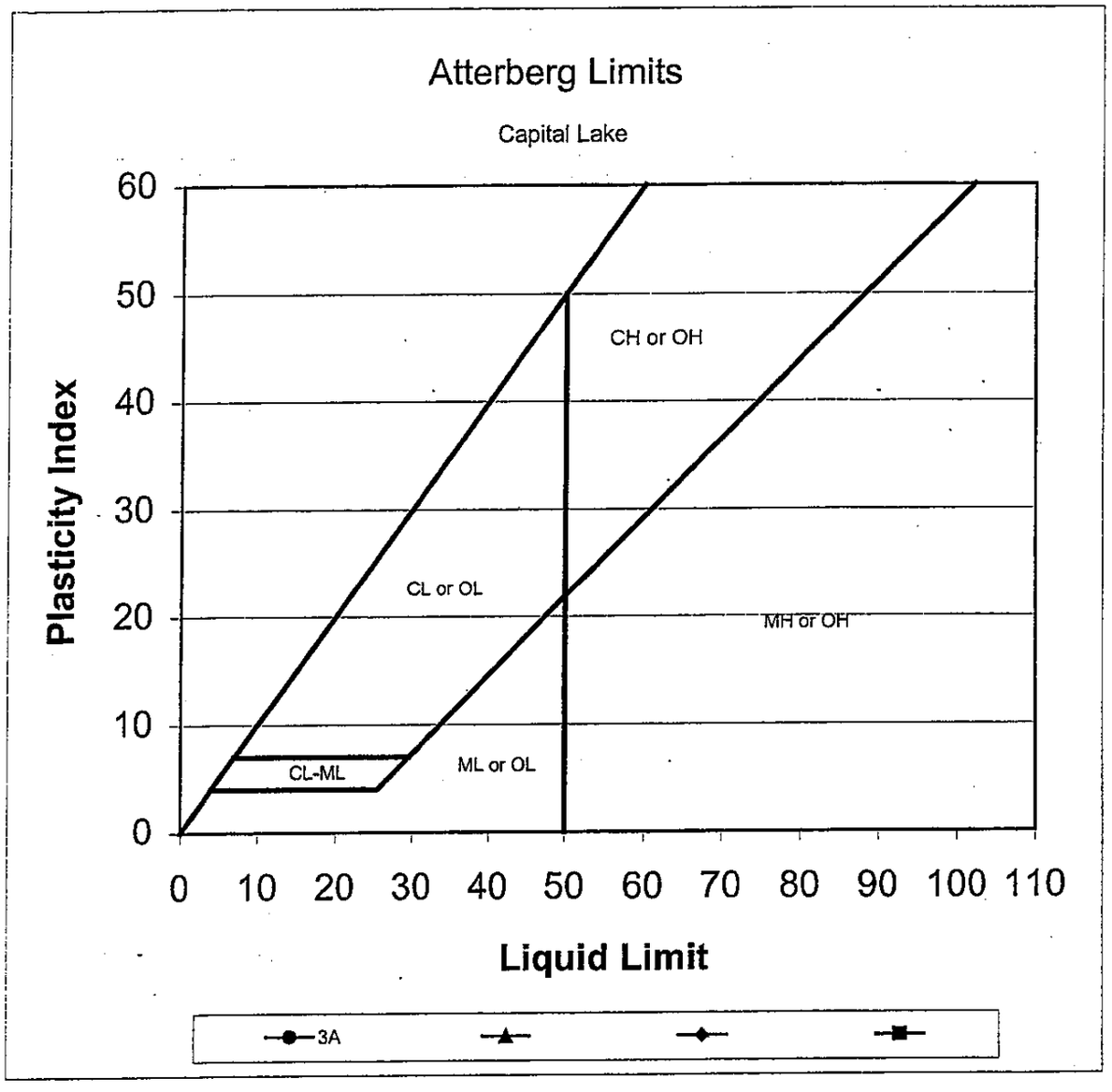
Sample Identification	Moisture Content (%)	TVS (%)
1A	87.8	4.3
1B	21.6	1.1
2A	88.6	5.4
2B	39.0	2.0
3A	38.1	1.9

Moisture content determined at 90 C, and TVS at 440 C.

ATTERBERG LIMITS



Sample Number	Depth	Plasticity Index	Liquid Limit	Plastic Limit	Classification
1A	NA	24.8	56.2	31.3	OH
1B	NA	Non-Plastic			SP
2A	NA	30.0	59.5	29.5	OH
2B	NA	Non-Plastic			SP



Sample Number	Depth	Plasticity Index	Liquid Limit	Plastic Limit	Classification
3A	NA	Non-Plastic			SP