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Analytical Chemistry Data Package
Inorganics Analysis

Project: West Lake Sediment Sampling

Analysis of AVS and SEM Metals in Sediment

JUN 20

Battelle Project No. 51558
CF No. 2710

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Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
(360) 681-4564

INORGANIC CHEMISTRY ANALYSIS DATA PACKAGE CONTENTS

West Lake Sediment Sampling
Analysis of AVS and SEM Metals in Sediment

FH Sample IDs: B1H821, B1H822
MSL Codes: 2710-1, 2710-2

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CERTIFICATION STATEMENT AND DATA RELEASE

Battelle Marine Sciences Laboratory is releasing the following data set:

WEST LAKE AVS-SEM
Project #51558

Analysis of AVS and SEM Metals in Sediment

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and client services as verified by the following signatures."

5/18/07

Jill M. Brandenberger — Date
MSL Metals Chemistry Project Manager

5/21/2007

Gary Gill — Date
MSL Metals Chemistry Group Manager

BATTELLE MARINE SCIENCES LABORATORY
1529 W. Sequim Bay Road
Sequim, WA 98382
(360) 681-3650

West Lake Sediment Sampling
AVS-SEM in SEDIMENT

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE		Receipt Date	Collection Date	AVS Analysis Date	SEM ICP-MS Analysis Date	SEM CVAA Analysis Date	% Dry Weight	AVS (µmole/g DW)	SEM Ag (µmole/g DW)
AVS Reagent Blank										
AVS Blank	2710 Blank 1		--	--	4/26/2007	5/1/2007	5/3/2007	*0.0*	1.12 U	0.00115
Blank Corrected Data										
B1N821	2710-1		4/24/2007	4/23/2007	4/26/2007	5/1/2007	5/3/2007	34.9	18.7	0.00094 U
B1N822	2710-2r1		4/24/2007	4/23/2007	4/26/2007	5/1/2007	5/3/2007	37.3	24.9	0.00094 U
B1N822DUP	2710-2r2	DUP	4/24/2007	4/23/2007	4/26/2007	5/1/2007	5/3/2007	37.3	26.8	0.00094 U
Method Detection Limit									1.20	0.00094

U Not detected above DL

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West Lake Sediment Sampling
AVS-SEM in SEDIMENT

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE		SEM Cd (µmole/g DW)	SEM Cu (µmole/g DW)	SEM Hg (µmole/g DW)	SEM Ni (µmole/g DW)	SEM Pb (µmole/g DW)	SEM Zn (µmole/g DW)
AVS Reagent Blank								
AVS Blank	2710 Blank 1		0.00134 U	0.0178	0.00000634	0.0178	0.00102	0.0524
Blank Corrected Data								
B1N821	2710-1		0.00384	0.0975	0.00000317 U	0.126	0.0402	0.303
B1N822	2710-2r1		0.00634	0.135	0.0000187	0.142	0.0366	0.368
B1N822DUP	2710-2r2	DUP	0.00598	0.197	0.0000282	0.140	0.0335	0.273
Method Detection Limit			0.00120	0.00746	0.00000317	0.00813	0.000653	0.0155

U Not detected above DL

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Matrix	% Dry Weight	AVS (µmole/g)	AVS MDL (µmole/g)	SEM RATIO (g/mL)
AVS Blank	2710 Blank 1	NA	*0*	0.738 U	1.19	0.000292
B1N821	2710-1	Sediment	34.9	18.7	1.29	0.000271
B1N822	2710-2r1	Sediment	37.3	24.9	1.35	0.000258
B1N822DUP	2710-2r2	Sediment	37.3	26.8	0.976	0.000357
Detection Limit (mean used for AVS)					*1.20*	*0.000295*

Replicate Analysis Results

B1N822	2710-2r1	Sediment	37.3	24.9	1.35	0.000258
B1N822DUP	2710-2r2	Sediment	37.3	26.8	0.976	0.000357
	RPD			**8%**		

Laboratory Control Sample Results

LCS r1	LCS r1 110706	0.515
LCS r2	LCS r2 110706	0.503
	Spike Concentration	0.505
	Percent Recovery	**102%**
		100%

RPD Relative percent difference
U Not detected above DL

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Ag (µg/L)	Ag µg/mL	Ag blk corr (µg/mL)	SEM Ag (µg/g)	SEM Ag (µmole/g)
AVS Blank	2710 Blank 1	0.0361	0.0000361	0.000036	0.124	0.00115
B1N821	2710-1	0.0281	0.0000281	-0.0000080	-0.0295	-0.0003 U
B1N822	2710-2r1	0.0410	0.0000410	0.0000049	0.0190	0.000176 U
B1N822DUP	2710-2r2	0.0416	0.0000416	0.0000055	0.0154	0.000143 U
Detection Limit		0.0300	0.000030	0.000030	0.102	0.00094
Replicate Analysis Results						
B1N822	2710-2r1	0.0410	0.0000410	0.00000490	0.0190	0.000176 U
B1N822DUP	2710-2r2	0.0416	0.0000416	0.00000550	0.0154	0.000143 U
	RPD					**NA**

Analysis Method Blank

Blank	diss blk	0.03	U

Standard Reference Material Data

1640 Direct	6.98
Certified Value	7.62
Percent Recovery	92%

Blank Spike

AVS Blank	2710 Blank 1	0.0361
Blank Spike		47.9
Amount Spiked		50
Percent Recovery, BS		96%

Matrix Spike Results

2710-1	0.03	U
2710-1 MS	47.1	
2710-1 MSD	48.3	
Amount Spiked	50	
Percent Recovery, MS	94%	
Percent Recovery, MSD	97%	
RPD	**3%**	

U Not detected above DL
* Outside QC criteria for replicate precision (<25%)

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Cd (µg/L)	Cd µg/mL	Cd blk corr (µg/mL)	SEM Cd (µg/g)	SEM Cd (µmole/g)
AVS Blank	2710 Blank 1	0.00508	0.0000051	0.000005	0.0174	0.000155 U
B1N821	2710-1	0.122	0.000122	0.000117	0.431	0.00384
B1N822	2710-2r1	0.189	0.000189	0.000184	0.712	0.00634
B1N822DUP	2710-2r2	0.245	0.000245	0.000240	0.672	0.00598
Detection Limit		0.040	0.00004	0.0000400	0.135	0.00120
Replicate Analysis Results						
B1N822	2710-2r1	0.189	0.000189	0.000184	0.712	0.00634
B1N822DUP	2710-2r2	0.245	0.000245	0.000240	0.672	0.00598
	RPD					**6%**

Analysis Method Blank

Blank	diss blk	0.04	U

Standard Reference Material Data

1640 Direct	22.3
Certified Value	22.8
Percent Recovery	98%

Blank Spike

AVS Blank	2710 Blank 1	0.04	U
Blank Spike		48.4	
Amount Spiked		50	
Percent Recovery, BS		97%	

Matrix Spike Results

2710-1	0.122
2710-1 MS	49.2
2710-1 MSD	49.1
Amount Spiked	50
Percent Recovery, MS	98%
Percent Recovery, MSD	98%
RPD	**0%**

U Not detected above DL
* Outside QC criteria for replicate precision (<25%)

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Cu (µg/L)	Cu (µg/mL)	Cu blk corr. (µg/mL)	SEM Cu (µg/g)	SEM Cu (µmole/g)
AVS Blank	2710 Blank 1	0.330	0.000330	0.000330	1.13	0.0178
B1N821	2710-1	2.01	0.00201	0.00168	6.20	0.0975
B1N822	2710-2r1	2.55	0.00255	0.00222	8.60	0.135
B1N822DUP	2710-2r2	4.79	0.00479	0.00446	12.5	0.197
Detection Limit		0.14	0.000140	0.000140	0.474	0.00746
Replicate Analysis Results						
B1N822	2710-2r1	2.55	0.00255	0.00222	8.60	0.135
B1N822DUP	2710-2r2	4.79	0.00479	0.00446	12.5	0.197
	RPD					**37% ***

Analysis Method Blank

Blank	diss blk	0.14	U

Standard Reference Material Data

1640 Direct	81.0
Reference Value	85.2
Percent Recovery	95%

Blank Spike

AVS Blank	2710 Blank 1	0.330
Blank Spike		50.0
Amount Spiked		50
Percent Recovery, BS		99%

Matrix Spike Results

2710-1	2.01
2710-1 MS	53.6
2710-1 MSD	53.3
Amount Spiked	50
Percent Recovery, MS	103%
Percent Recovery, MSD	103%
RPD	**1%**

U Not detected above DL
* Outside QC criteria for replicate precision (<25%)

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Hg (µg/L)	Hg (µg/mL)	Hg blk corr (µg/mL)	SEM Hg (µg/g)	SEM Hg (µmole/g)
AVS Blank	2710 Blank 1	0.000371	0.00000037	0.00000037	0.001272	0.00000634
B1N821	2710-1	0.000497	0.0000005	0.00000013	0.000465	0.00000232 U
B1N822	2710-2r1	0.00134	0.0000013	0.00000097	0.003752	0.0000187
B1N822DUP	2710-2r2	0.00239	0.0000024	0.00000202	0.005657	0.0000282
Detection Limit		0.000188	0.0000002	0.00000019	0.000636	0.00000317
Replicate Analysis Results						
B1N822	2710-2r1	0.00134	0.00000134	0.00000097	0.00375	0.0000187
B1N822DUP	2710-2r2	0.00239	0.00000239	0.00000202	0.00566	0.0000282
	RPD					**40% ***

Analysis Method Blank

Blank	Bubbler Blank	0.000188 U

Standard Reference Material Data

1641d	1630
Certified Value	1590
Percent Recovery	103%

Blank Spike

AVS Blank	2710 Blank 1	0.000371
Blank Spike		0.207
Amount Spiked		0.200
Percent Recovery, BS		103%

Matrix Spike Results

2710-1	0.000497
2710-1 MS	0.0316
2710-1 MSD	0.0336
Amount Spiked	0.0318
Percent Recovery, MS	98%
Percent Recovery, MSD	104%
RPD	**6%**

U Not detected above DL

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Ni (µg/L)	Ni (µg/mL)	Ni blk corr (µg/mL)	SEM Ni (µg/g)	SEM Ni (µmole/g)
AVS Blank	2710 Blank 1	0.305	0.000305	0.000305	1.05	0.0178
B1N821	2710-1	2.31	0.00231	0.00201	7.39	0.126
B1N822	2710-2r1	2.46	0.00246	0.00216	8.34	0.142
B1N822DUP	2710-2r2	3.23	0.00323	0.00293	8.20	0.140
Detection Limit		0.141	0.00014	0.000141	0.477	0.00813
Replicate Analysis Results						
B1N822	2710-2r1	2.46	0.002	0.0022	8.34	0.142
B1N822DUP	2710-2r2	3.23	0.003	0.0029	8.20	0.140
	RPD					**2%**

Analysis Method Blank

Blank	diss blk	0.141	U

Standard Reference Material Data

1640 Direct	25.3
Reference Value	27.4
Percent Recovery	92%

Blank Spike

AVS Blank	2710 Blank 1	0.305
Blank Spike		51.4
Amount Spiked		50
Percent Recovery, BS		102%

Matrix Spike Results

2710-1	2.31
2710-1 MS	54.3
2710-1 MSD	53.7
Amount Spiked	50
Percent Recovery, MS	104%
Percent Recovery, MSD	103%
RPD	**1%**

U Not detected above DL
* Outside QC criteria for replicate precision (<25%)

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Pb (µg/L)	Pb µg/mL	Pb blk corr (µg/mL)	SEM Pb (µg/g)	SEM Pb (µmole/g)
AVS Blank	2710 Blank 1	0.0617	0.000062	0.000062	0.212	0.00102
B1N821	2710-1	2.32	0.00232	0.0023	8.33	0.0402
B1N822	2710-2r1	2.02	0.00202	0.0020	7.58	0.0366
B1N822DUP	2710-2r2	2.54	0.00254	0.0025	6.94	0.0335
Detection Limit		0.04	0.000040	0.0000400	0.135	0.000653
Replicate Analysis Results						
B1N822	2710-2r1	2.02	0.002	0.0020	7.58	0.0366
B1N822DUP	2710-2r2	2.54	0.003	0.0025	6.94	0.0335
	RPD					**9%**

Analysis Method Blank			
Blank	diss blk	0.04	U
Standard Reference Material Data			
1640 Direct		26.2	
Certified Value		27.9	
Percent Recovery		94%	
Blank Spike			
AVS Blank	2710 Blank 1	0.0617	
Blank Spike		46.6	
Amount Spiked		50	
Percent Recovery, BS		93%	
Matrix Spike Results			
2710-1		2.32	
2710-1 MS		49.6	
2710-1 MSD		49.4	
Amount Spiked		50	
Percent Recovery, MS		95%	
Percent Recovery, MSD		94%	
RPD		**0%**	

U Not detected above DL

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Project: West Lake Sediment Sampling
File #: 2710

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	Zn (µg/L)	Zn µg/mL	Zn blk corr (µg/mL)	SEM Zn (µg/g)	SEM Zn (µmole/g)
AVS Blank	2710 Blank 1	1.00	0.00100	0.00100	3.43	0.0524
B1N821	2710-1	6.37	0.00637	0.00537	19.8	0.303
B1N822	2710-2r1	7.21	0.00721	0.00621	24.0	0.368
B1N822DUP	2710-2r2	7.38	0.00738	0.00638	17.9	0.273
Detection Limit		0.30	0.000300	0.000300	1.02	0.0155
Replicate Analysis Results						
B1N822	2710-2r1	7.21	0.00721	0.00621	24.0	0.368
B1N822DUP	2710-2r2	7.38	0.00738	0.00638	17.9	0.273
	RPD					**29% ***
Analysis Method Blank						
Blank	diss blk	0.30	U			
Standard Reference Material Data						
1640 Direct		56.3				
Reference Value		53.2				
Percent Recovery		106%				
Blank Spike						
AVS Blank	2710 Blank 1	1.00				
Blank Spike		52.1				
Amount Spiked		50				
Percent Recovery, BS		102%				
Matrix Spike Results						
2710-1		6.37				
2710-1 MS		59.1				
2710-1 MSD		57.8				
Amount Spiked		50				
Percent Recovery, MS		105%				
Percent Recovery, MSD		103%				
RPD		**2%**				

U Not detected above DL

QA/QC NARRATIVE

PROJECT:	West Lake Sediment Sampling
PARAMETER:	Acid Volatile Sulfide (AVS) and Simultaneously Extracted Metals (SEM) – mercury (Hg), silver (Ag), cadmium (Cd), copper (Cu), nickel (Ni), lead (Pb), and zinc (Zn)
LABORATORY:	Pacific Northwest National Laboratory operated by Battelle, Marine Sciences Laboratory (MSL), Sequim, Washington
MATRIX:	Sediment
SAMPLE CUSTODY AND PROCESSING:	Two sediment samples were received in on 04/24/07. All samples were received in good condition (i.e., no sample containers were broken or leaking). Samples were assigned a Battelle Central File (CF) identification number (2710) and were entered into the MSL sample tracking and project management system.

SAMPLE PROCESSING INFORMATION:

MSL Code:	**2710*1-2**
Description:	Sediment
Collection dates	04/23/07
Laboratory arrival date	04/24/07
Cooler temperature on arrival	5.9°C
AVS Analysis Date:	04/26/07
SEM Analysis Dates:	Hg: 05/03/07 and ICP-MS: 05/01/07

METHODS:

Sediment samples were extracted and analyzed for AVS in accordance with Battelle SOP MSL-C-001. This procedure is based on a peer-reviewed, published procedure for the analysis of AVS in sediment and dissolved sulfide in aqueous samples, adopted from a draft EPA method (Allen et al. 1991.). In this method, sulfide in the sample is converted to hydrogen sulfide by the addition of hydrochloric acid at room temperature. The hydrogen sulfide (H_2S) is purged from the sample by an inert gas and trapped in a sodium hydroxide (NaOH) solution. With the addition of a mixed-diamine reagent (MDR), the sulfide is converted to methylene blue and measured on a spectrometer. AVS results were reported in units of μmole/g and μg/g on a dry-weight basis.

SEM extracts were analyzed for Total mercury (Hg) by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP MSL-I-013, Total Mercury in Aqueous Samples by CVAF based on EPA Method 1631 Revision E.

SEM extracts were analyzed for all other metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP MSL-I-022, Determination of Elements in Aqueous and Digestate Samples by ICP/MS. The analysis guidelines for this procedure are adapted from USEPA Method 1638 Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry.

SEM data are converted to units of μmole/g and μg/g dry weight based on the mass of sediment extracted during the AVS analysis.

QA/QC NARRATIVE

HOLDING TIMES: The suggested holding time for AVS in sediment is 14 days per Battelle SOP MSL-C-001. All samples were analyzed within the holding time.

DATA QUALITY CRITERIA (DQC):

Analyte	Analytical Method	Method Range of Spike Recovery	Replicate Precisions (RPD)	Achieved MDL (µmole/g)
AVS	Spectrometer	75-125%	±25%	1.2
SEM Hg	CVAA	75-125%	±25%	0.00000371
SEM Ag	ICP-MS	75-125%	±25%	0.00094
SEM Cd	ICP-MS	75-125%	±25%	0.00120
SEM Cu	ICP-MS	75-125%	±25%	0.00746
SEM Ni	ICP-MS	75-125%	±25%	0.00813
SEM Pb	ICP-MS	75-125%	±25%	0.000653
SEM Zn	ICP-MS	75-125%	±25%	0.0155

DETECTION LIMITS: Analytical results were reported to the laboratory achieved method detection limits (MDL) as determined from the Annual MDL study. MDLs were determined according to EPA's "Definition and Procedure for the Determination of the Method Detection Limit - revision 1.11" 40 CFR Part 136, Appendix B. Data were evaluated and flagged in accordance with the following criteria:

U Undetected at the MDL, RL reported.

* QC sample outside criteria.

METHOD BLANKS: One AVS Blank was prepared with the samples. The AVS analytical procedure includes the addition of reagents that contain trace quantities of metals. Therefore, the SEM data was reported as blank corrected and determined as the SEM value minus the AVS Blank value. Analytical method blanks were also prepared for the two analytical methods: ICP-MS and CVAA. Analytical method blanks were less than the MDL for all metals.

LABORATORY CONTROL SAMPLE (LCS) ACCURACY: Sediment samples were analyzed with two LCS samples. The percent recoveries for the AVS LCS were 102% and 100%, which are within the project QC criterion of 75-125% recovery. Blank spikes were also analyzed with each of the two SEM methods: (ICP-MS and CVAA). All SEM blank spikes were within the 75-125% recovery criterion.

REPLICATE PRECISION: One samples was selected for an AVS laboratory duplicate. Precision of duplicate analyses was expressed as the relative percent difference (RPD) of replicate results. The RPD was 8% and within the QC criterion of ±25%. Precision for SEM analyses was determined by the analysis of matrix spike duplicates (MS/MSD). All RPD values were within the QC criterion. The AVS laboratory duplicates generated two SEM samples. Both SEM samples were analyzed, but do not represent laboratory precision.

MATRIX SPIKE ACCURACY: Matrix spike samples were analyzed for both SEM methods: ICP-MS and CVAA. Matrix spike recoveries were within the QC acceptance criterion.

REFERENCES:

Allen, H.E., F. Gongmin, W. Boothman, D. DiToro, and J. Mahoney. 1991. Determination of Acid Volatile Sulfides (AVS) and Simultaneously Extracted Metals in Sediment. Draft Analytical Method for Determination of Acid Volatile Sulfide in Sediment. USEPA Office of Science and Technology, Washington, DC. April, 1991.

cc: Project Manager/Central File
Login File 2710

SAMPLE LOGIN
(SOP# MSL-A-001)

Project Manager: Brandenberger
Date Received: 04/24/07
Batch: 1

PROJECT: West Lake

SPONSOR CODE	Site Description	BATTELLE CODE	MATRIX	STORAGE LOCATION	PARAMETERS REQUESTED	COLLECTION DATE	INITIALS
B1N821	na	2710-1	solid	Refrigerator #8 Lab 223	metals, AVS, SEM	04/23/07	MLFM
B1N822	na	2710-2	solid	Refrigerator #8 Lab 223	metals, AVS, SEM	04/23/07	MLFM

[redacted]

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F06-037-008	PAGE 1 OF 1
COLLECTOR 04-23-07 B. Tiller ~~HOGAN, JG~~	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 9H	DATA TURNAROUND
SAMPLING LOCATION West Lake	PROJECT DESIGNATION West Lake Sediment Sampling		SAF NO. F06-037	AIR QUALITY ☐	30 Days / 30 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 121527ES20	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO Battelle Marine Sciences	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	250mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1N821 2710.1	OTHER SOLID	04-23-07	1420	X
B1N822 2710.2	OTHER SOLID	04-23-07	1422	X

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
B Tiller BRETT TILLER cooler	04-23-07/1515	FEDEX. 7991 2755 7691	1515 04-23-07

SPECIAL INSTRUCTIONS
** Laboratories are to extract/prep entire sample mass for analysis
(1)AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc} AVS - SEM - HG {Mercury} AVS - SEM - SULFIDES {Sulfide}

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
	[signature] Battelle MSL		04/24/07 1240
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

LOG-IN CHECKLIST West Lake Samples Reference SOP# MSL-A-001

Central File #: 2710 Sample No(s): 1-2 Project Manager: Brandon Burger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: Sediment WP#

Yes	No	
	✓	Navy-type Project (requires high-level sample tracking procedures)
	✓	Filter Samples: *Amount:* Entire sample / Half of sample
	✓	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
✓		Special instructions: Keep sealed

Sample Preservation Instructions: refrigerate until analyses

Date To Archive: Date To Dispose:

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	N/A		Was a custody seal present? Note: Custody seal on samples was present.
		N/A	Was the custody seal intact? Note: Custody seal was intact.
N/A			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? 5.9 °C (if multiple coolers, note temp. of each) °C
		N/A	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
N/A			Were all chain of custody forms signed and dated?
	N/A		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Spex Other:

Notes: PM notes- the custody seal questions above are for the coolers the samples arrive in. The custody seals were on the sample jars. JMS 4/25/07

Completed By: Date/Time: 04/24/07 1240

SAMPLE PRESERVATION

- N/A Sample(s) were preserved at MSL
- Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type:
- 0.2% HNO3 Notes:
- 0.5% HCl (Hg samples) Notes:
- N/A Refrigerate/Freeze Notes: fridge in lab 223
- Other Notes:

Completed By: Date/Time: 04/24/07 1240

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