



Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

June 26, 2013

Rusty Simpson
Southwest Geoscience
2351 W. Northwest Hwy
Suite 3321
Dallas, TX 75220

RE: Pace Project 756036
Project ID: 0111C278A/SC Sediment Sampling

Dear Rusty Simpson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 13, 2013. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

SC-Sed-41, SC-Sed-42 and SC-Sed-43 were canceled by the customer on 06/17/13.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Shelly Connelly".

Shelly Connelly
shelly.connelly@pacelabs.com

Laboratory Certifications

Pace Dallas : Texas Certification #: T104704232-12-4



REPORT OF LABORATORY ANALYSIS

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06/26/2013 15:50:08



Sample Cross Reference

Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

Pace Project No.: 756036

Client: Southwest Geoscience
Project ID: 0111C278A/SC Sediment Sampling

Client Sample ID	Lab ID	Matrix	Collection Date/Time	Received Date/Time
SC-Sed-31-1/2/3	756036001	Solid	06/12/2013 13:42	06/13/2013 13:25
SC-Sed-32-1/2/3	756036002	Solid	06/12/2013 14:13	06/13/2013 13:25
SC-Sed-33-1/2/3	756036003	Solid	06/12/2013 14:44	06/13/2013 13:25
SC-Sed-34-1/2/3	756036004	Solid	06/12/2013 15:12	06/13/2013 13:25
SC-Sed-35-1/2/3	756036005	Solid	06/12/2013 16:02	06/13/2013 13:25
SC-Sed-36-1/2/3	756036006	Solid	06/12/2013 16:28	06/13/2013 13:25
SC-Sed-37-1/2/3	756036007	Solid	06/12/2013 17:56	06/13/2013 13:25
SC-Sed-38-1/2/3	756036008	Solid	06/12/2013 18:14	06/13/2013 13:25
SC-Sed-39-1/2/3	756036009	Solid	06/12/2013 18:35	06/13/2013 13:25
SC-Sed-40-1/2/3	756036010	Solid	06/12/2013 18:54	06/13/2013 13:25



Project Narrative

Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

Pace Project No.: 756036

Holding Times:

All holding times were met.

Blanks:

All blank results were below reporting limits.

Laboratory Control Samples:

All LCS recoveries were within QC limits.

Matrix Spikes and Duplicates:

MS or MSD recoveries outside of QC limits are qualified in the Report of Quality Control section.

Surrogate:

All surrogate recoveries were within QC limits.

Appendix A
LABORATORY DATA PACKAGE COVER PAGE

This data package is for Job No. 756036 and consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
 - a. Items consistent with NELAC Chapter 5,
 - b. Dilution factors,
 - c. Preparation methods,
 - d. Cleanup methods, and
 - e. If required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
 - a. Calculated recovery (%R), and
 - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
 - a. LCS spiking amounts,
 - b. Calculated %R for each analyte, and
 - c. The laboratory's LCS QC limits.
- R7 - Test reports/summary forms for matrix spike/matrix spike duplicates (MS/MSDs) including:
 - a. Samples associated with the MS/MSD clearly identified,
 - b. MS/MSD spiking amounts,
 - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
 - d. Calculated %Rs and relative percent differences, and
 - e. The laboratory's MS/MSD QC limits.
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
 - a. The amount of analyte measured in the duplicate,
 - b. The calculated RPD, and,
 - c. The laboratory's QC limits for analytical duplicated.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte and
- R10 - Other problems or anomalies.

The exception Report for each "No" or "Not Reviewed (NR) " item in the Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [] This laboratory meets an exception under 30 TAC §25.6 and was last inspected by [X] TCEQ on 02/24/2012

Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Name (Printed)
Shelly Connelly

Signature
Shelly Connelly

Official Title (Printed)
Project Manager

Date
06/26/2013



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-31-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036001

Moisture: 22.9%

Pace Project No.: 756036

Collected: 06/12/2013 13:42

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	19.2		mg/kg	0.31	0.12	06/19/2013 16:54	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.38		mg/kg	0.12	0.025	06/19/2013 16:54	06/18/2013 17:33	6806	75ICP1
Lead	1	12.7		mg/kg	0.25	0.062	06/19/2013 16:54	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	33.0		mg/kg	6.5	3.3	06/24/2013 11:31	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-32-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036002

Moisture: 14.7%

Pace Project No.: 756036

Collected: 06/12/2013 14:13

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	19.3		mg/kg	0.29	0.12	06/19/2013 17:00	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.64		mg/kg	0.12	0.023	06/19/2013 17:00	06/18/2013 17:33	6806	75ICP1
Lead	1	12.3		mg/kg	0.23	0.059	06/19/2013 17:00	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	18.7		mg/kg	6.0	3.0	06/24/2013 13:33	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-33-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036003

Moisture: 19.3%

Pace Project No.: 756036

Collected: 06/12/2013 14:44

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	18.5		mg/kg	0.31	0.12	06/19/2013 17:06	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.42		mg/kg	0.12	0.025	06/19/2013 17:06	06/18/2013 17:33	6806	75ICP1
Lead	1	14.6		mg/kg	0.25	0.062	06/19/2013 17:06	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	34.3		mg/kg	6.3	3.2	06/24/2013 14:08	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-34-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036004

Moisture: 17.6%

Pace Project No.: 756036

Collected: 06/12/2013 15:12

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	16.0		mg/kg	0.32	0.13	06/19/2013 17:11	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.67		mg/kg	0.13	0.025	06/19/2013 17:11	06/18/2013 17:33	6806	75ICP1
Lead	1	14.3		mg/kg	0.25	0.063	06/19/2013 17:11	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	20.1		mg/kg	6.2	3.1	06/24/2013 14:41	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-35-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036005

Moisture: 22%

Pace Project No.: 756036

Collected: 06/12/2013 16:02

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	17.8		mg/kg	0.31	0.13	06/19/2013 17:17	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.45		mg/kg	0.13	0.025	06/19/2013 17:17	06/18/2013 17:33	6806	75ICP1
Lead	1	13.0		mg/kg	0.25	0.063	06/19/2013 17:17	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	21.9		mg/kg	6.5	3.2	06/24/2013 15:15	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-36-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036006

Moisture: 15.8%

Pace Project No.: 756036

Collected: 06/12/2013 16:28

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	17.7		mg/kg	0.30	0.12	06/19/2013 17:22	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.61		mg/kg	0.12	0.024	06/19/2013 17:22	06/18/2013 17:33	6806	75ICP1
Lead	1	11.5		mg/kg	0.24	0.061	06/19/2013 17:22	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	62.8		mg/kg	8.2	4.1	06/24/2013 15:50	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-37-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036007

Moisture: 19.9%

Pace Project No.: 756036

Collected: 06/12/2013 17:56

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	16.2		mg/kg	0.32	0.13	06/19/2013 17:44	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.57		mg/kg	0.13	0.025	06/19/2013 17:44	06/18/2013 17:33	6806	75ICP1
Lead	1	12.1		mg/kg	0.25	0.064	06/19/2013 17:44	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	28.6		mg/kg	6.5	3.2	06/24/2013 17:00	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-38-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036008

Moisture: 23%

Pace Project No.: 756036

Collected: 06/12/2013 18:14

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	12.7		mg/kg	0.33	0.13	06/19/2013 17:50	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.33		mg/kg	0.13	0.026	06/19/2013 17:50	06/18/2013 17:33	6806	75ICP1
Lead	1	9.7		mg/kg	0.26	0.066	06/19/2013 17:50	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	25.8		mg/kg	6.5	3.3	06/24/2013 17:34	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-39-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036009

Moisture: 20.5%

Pace Project No.: 756036

Collected: 06/12/2013 18:35

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	11.6		mg/kg	0.32	0.13	06/19/2013 17:56	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.47		mg/kg	0.13	0.025	06/19/2013 17:56	06/18/2013 17:33	6806	75ICP1
Lead	1	10.6		mg/kg	0.25	0.064	06/19/2013 17:56	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	51.1		mg/kg	6.3	3.2	06/24/2013 18:09	06/21/2013 12:14	6975	75WTA1



Sample Results

Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

Client: Southwest Geoscience

Client ID: SC-Sed-40-1/2/3

Project ID: 0111C278A/SC Sediment

Lab ID: 756036010

Moisture: 29.2%

Pace Project No.: 756036

Collected: 06/12/2013 18:54

Received: 06/13/2013 13:25

Matrix: Solid

Parameters	DF	Results	Qual	Units	MQL	SDL	Analysis Date	Prep Date	Batch	Instr.
6010 Metals, Total		Analytical Method: EPA 6010			Preparation Method: EPA 3050					
Arsenic	1	7.0		mg/kg	0.36	0.14	06/19/2013 18:01	06/18/2013 17:33	6806	75ICP1
Cadmium	1	0.16		mg/kg	0.14	0.029	06/19/2013 18:01	06/18/2013 17:33	6806	75ICP1
Lead	1	12.9		mg/kg	0.29	0.072	06/19/2013 18:01	06/18/2013 17:33	6806	75ICP1
Extractable Organic Carbon		Analytical Method: EPA 9060M			Preparation Method: EPA 9060M					
Total Organic Carbon	1	38.4		mg/kg	7.4	3.7	06/24/2013 18:44	06/21/2013 12:14	6975	75WTA1



Quality Control

Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

Batch: 6885
Method: ASTM D2974-87

Pace Project No.: 756036
Instrument ID: 75BAL3

Duplicate: 27658

Original for Sample: Client sample F-10 (0-1)

<u>Parameters</u>	<u>Original Result</u>	<u>Dup Result</u>	<u>Units</u>	<u>RPD</u>	<u>Max RPD</u>	<u>Quals</u>
Percent Moisture	19.1	21.2	%	11	20	



Quality Control

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Batch: 6806
 Method: EPA 6010
 Prep Method: EPA 3050

Pace Project No.: 756036
 Instrument ID: 75ICP1

Blank: 27347

Parameters	Dilution	Quals	Result	Units	MQL	SDL	Analysis Date	Prep Date
Arsenic	1	U	<0.10	mg/kg	0.25	0.10	06/19/2013 14:20	06/18/2013 17:33
Cadmium	1	U	<0.020	mg/kg	0.10	0.020	06/19/2013 14:20	06/18/2013 17:33
Lead	1	U	<0.050	mg/kg	0.20	0.050	06/19/2013 14:20	06/18/2013 17:33

Laboratory Control Sample: 27348

Parameters	Spk Amt	LCS Result	Units	LCS %Rec	% Rec Limits	LCS Quals
Arsenic	50	48.4	mg/kg	97	80-120	
Cadmium	50	48.1	mg/kg	96	80-120	
Lead	50	51.0	mg/kg	102	80-120	

Matrix Spike: 27349

Matrix Spike Duplicate: 27350

Original for Sample: Batch sample 754768017

Parameters	Original Result	MS Spk	MSD Spk	MS Result	MSD Result	Units	MS %Rec	MSD %Rec	% Rec Limits	RPD	Max RPD	Quals
Arsenic	4.3	56.1	55.1	37.8	38.0	mg/kg	60	61	75-125	0	20	M1
Cadmium	0.076J	56.1	55.1	33.8	34.3	mg/kg	60	62	75-125	1	20	M1
Lead	8.9	56.1	55.1	39.2	39.0	mg/kg	54	55	75-125	0	20	M1

Matrix Spike: 27351

Matrix Spike Duplicate: 27352

Original for Sample: Batch sample 754768018

Parameters	Original Result	MS Spk	MSD Spk	MS Result	MSD Result	Units	MS %Rec	MSD %Rec	% Rec Limits	RPD	Max RPD	Quals
Arsenic		52.2	54.7	34.6	38.7	mg/kg	59	63	75-125	11	20	M1
Cadmium		52.2	54.7	31.0	35.5	mg/kg	59	65	75-125	13	20	M1
Lead	9.0	52.2	54.7	36.3	39.8	mg/kg	52	56	75-125	9	20	M1



Quality Control

Pace Analytical Services, Inc.
 400 W. Bethany Drive, Suite 190
 Allen, TX 75013
 (972) 727-1123

Batch: 6975
Method: EPA 9060M
Prep Method: EPA 9060M

Pace Project No.: 756036
Instrument ID: 75WTA1

Blank: 28154

Parameters	Dilution	Quals	Result	Units	MQL	SDL	Analysis Date	Prep Date
Total Organic Carbon	1	J	3.2	mg/kg	5.0	2.5	06/24/2013 10:51	06/21/2013 12:14

Laboratory Control Sample: 28155

Parameters	Spk Amt	LCS Result	Units	LCS %Rec	% Rec Limits	LCS Quals
Total Organic Carbon	100	109	mg/kg	109	80-120	

Matrix Spike: 28156

Matrix Spike Duplicate: 28157

Original for Sample: Project sample SC-Sed-31-1/2/3

Parameters	Original Result	MS Spk	MSD Spk	MS Result	MSD Result	Units	MS %Rec	MSD %Rec	% Rec Limits	RPD	Max RPD	Quals
Total Organic Carbon	33.0	130	127	167	164	mg/kg	103	103	80-120	2	20	

Matrix Spike: 28158

Matrix Spike Duplicate: 28159

Original for Sample: Client sample SCF-Sed-9-1/2/3

Parameters	Original Result	MS Spk	MSD Spk	MS Result	MSD Result	Units	MS %Rec	MSD %Rec	% Rec Limits	RPD	Max RPD	Quals
Total Organic Carbon	18.5	130	128	154	150	mg/kg	105	103	80-120	3	20	



Unadjusted MQL Summary

Pace Analytical Services, Inc.
400 W. Bethany Drive, Suite 190
Allen, TX 75013
(972) 727-1123

Pace Project No.: 756036

Analyte	Method	Unadjusted MQL	Reporting Units
Arsenic	EPA 6010	0.25	mg/kg
Cadmium	EPA 6010	0.10	mg/kg
Lead	EPA 6010	0.20	mg/kg
Total Organic Carbon	EPA 9060M	5.0	mg/kg



Pace Project No.: 756036

DEFINITIONS

- DF Dilution Factor
- J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
- U Indicates the compound was analyzed for, but not detected.
- SDL Sample Detection Limit
- MQL Method Quantitation Limit
- LCS(D) Laboratory Control Sample (Duplicate)
- MS(D) Matrix Spike (Duplicate)
- DUP Sample Duplicate
- RPD Relative Percent Difference
- TNI The Nelac Institute

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

ANALYTE QUALIFIERS

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

TRRP LABORATORY REVIEW CHECKLIST

Laboratory		Pace Analytical Services, Inc.	LRC Date:		06/26/2013		
Project Name:		0111C278A/SC Sediment Sampling	Laboratory Job Number:		756036		
Reviewer Name:		Shelly Connelly	Prep Batch Number(s):		See exception report.		
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER # ⁵
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R7.3
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSS included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory in the laboratory data package submitted in the TRRP-required reports(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period;
- O = Organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

TRRP LABORATORY REVIEW CHECKLIST

Laboratory		Pace Analytical Services, Inc.	LRC Date:		06/26/2013		
Project Name:		0111C278A/SC Sediment Sampling	Laboratory Job Number:		756036		
Reviewer Name:		Shelly Connelly	Prep Batch Number(s):		See exception report.		
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER # ⁵
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?	X				
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed?	X				

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TRRP LABORATORY REVIEW CHECKLIST

Laboratory	Pace Analytical Services, Inc.	LRC Date:	06/26/2013
Project Name:	0111C278A/SC Sediment Sampling	Laboratory Job Number:	756036
Reviewer Name:	Shelly Connelly	Prep Batch Number(s):	6806,6885,6975
ER #¹	Description		
R7.3	MS Sample #27349: Arsenic 60% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MS Sample #27349: Cadmium 60% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MS Sample #27349: Lead 54% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MS Sample #27351: Arsenic 59% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MS Sample #27351: Cadmium 59% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MS Sample #27351: Lead 52% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27350: Arsenic 61% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27350: Cadmium 62% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27350: Lead 55% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27352: Arsenic 63% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27352: Cadmium 65% spike recovery outside laboratory QC limit of 75-125%.		
R7.3	MSD Sample #27352: Lead 56% spike recovery outside laboratory QC limit of 75-125%.		
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