

12636



Remediation and Liability Management Company, Inc.

MC: 483-619-356
1996 Technology Drive
Troy, Michigan 48083
(248) 680-5548
Fax (248) 680-5129

April 24, 2003

Mr. Kevin Holdwick
Michigan Department of Environmental Quality
Waste Management Division
P.O. Box 30241
Lansing, MI 48909-7741

Dear Mr. Holdwick:

Re: RCRA Facility Investigation - Second Round Groundwater Sampling
Former Peregrine (US) Inc. Coldwater Road Facility, Genesee Township, Michigan
MIR 000 020 743

This letter presents the results of the second-round of groundwater samples collected under the Voluntary RCRA Facility Investigation (RFI) at the former Peregrine (US) Inc. Coldwater Road Facility (Facility) located in Genesee Township, Michigan (see Attachment A). Groundwater samples for the shallow perched zone were collected from monitoring wells at the Facility in 1996 (pre-RFI groundwater samples) and then again in 2000 (first-round RFI groundwater samples). A comparison of the results revealed discrepancies, and in their letter dated March 29, 2001, the MDEQ requested that a second-round of RFI sampling be collected (Comment No. 6). The purpose of this letter is to present the additional analytical results, and compare and contrast these to the pre-RFI and first-round RFI groundwater sampling results. Attachment A provides an overview of the historical and recent groundwater sampling activities at the Facility.

The results indicate no exceedances of MDEQ Industrial Drinking Water Criteria (IDWC) at the Facility.

Should you have any questions on the attached, please do not hesitate to contact me at (248) 680-5219.

Yours truly,

REMEDICATION AND LIABILITY MANAGEMENT COMPANY, INC.

for 

Cheryl Hiatt
Project Manager
REALM, Inc.

CLS/jdh/12636/8
Encl.

c.c.: Joe Rogers - MDEQ
Tony Finch - OBG
Glenn Turchan - CRA

John McCabe - MDEQ
Robert Metcalf - GM
Steve Song - ENVIRON
Sylvie Eastman - CRA

April 24, 2003

ATTACHMENT A
SUMMARY OF GROUNDWATER SAMPLING ACTIVITIES AND RESULTS
FORMER PEREGRINE (US) INC.
GENESEE TOWNSHIP, MICHIGAN

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APRIL 24, 2003

ATTACHMENT A

SUMMARY OF GROUNDWATER SAMPLING ACTIVITIES AND RESULTS FORMER PEREGRINE (US)

1.0 Pre-RFI Groundwater Sampling

Several environmental investigations were conducted at the Facility prior to the RFI. As part of the "Description of Current Conditions Report" (CRA, March 2000) prepared immediately prior to the RFI, all available analytical results from the historical studies were compiled and presented. Copies of the analytical results were provided in Appendices B through E of the DOCC Report, with a summary table highlighting all groundwater samples that exceeded published criteria provided as Table 6.3 of the DOCC Report. Based on the pre-RFI results, exceedance of MDEQ Industrial Drinking Water Criteria (IDWC) were identified as follows:

- MW-3 for total lead (12 µg/L);
- MW-4 for TCE (54.3 µg/L) and lead (26 µg/L);
- MW-10 for total lead (14 µg/L);
- MW-11 for total lead (22 µg/L) and TCE (6.2 µg/L);
- MW-13 for TCE (8.4 µg/L);
- MW-14 for TCE (6/21.3 µg/L);
- PFW-9 for lead (9 µg/L);
- PFW-10 for barium (2600 µg/L); and
- MW-12 for TCE (7.1 µg/L).

These results are provided on Figure 5.13 (revised) included as Attachment A.1 to this letter.

2.0 First Round RFI Groundwater Sampling

As specified in the RFI Work Plan (CRA, May 2000), groundwater samples were to be collected at each AOI if a significant groundwater aquifer was encountered during the soil boring program. The monitoring wells were to be installed if the native porous media encountered throughout the AOI was greater than 5 feet thick and the zone of saturation was greater than 2 feet thick. The monitoring wells were to be developed, purged, and sampled for TCL/TAL constituents. However, as identified in Section 2.5 of the RFI Report, the subsurface soils at the Facility are predominately glacial clay tills. As a result, a continuous surficial groundwater bearing unit was not encountered immediately below any of the AOIs. Therefore, groundwater monitoring wells were not installed and groundwater samples were not collected from the boring locations during the RFI investigation.

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As specified in the RFI Work Plan, five existing monitoring wells at the facility were resampled as part of the RFI (CRA, November 2000). Groundwater samples were submitted to Severn Trent Laboratories (STL) for one or more of the following chemical analyses:

- TCL VOCs by U.S. EPA Method 8260B; and
- Dissolved Lead by U.S. EPA Method 6010B.

The analytical results for these samples were provided in Appendix E of the RFI Report, and are provided on Figure 5.13 (revised) included as Attachment A.1 to this letter.

A comparison of the pre-RFI and RFI groundwater sampling results indicates that while the pre-RFI results indicated exceedances of the MDEQ-IDWC at a variety of the monitoring wells, the RFI results did not indicate any sample results above the MDEQ-IDWC in the two areas that were sampled. It is important to note that not all of the locations sampled during the pre-RFI activities were included in the RFI sampling activities.

3.0 Second Round RFI Groundwater Sampling

On October 16, 2002, CRA field personnel sampled monitoring wells MW-3 and PFW-9 for analysis of dissolved lead, and monitoring well PFW-10 for analysis of dissolved barium. A total of four groundwater samples were collected, including a duplicate sample from MW-3.

Prior to purging, new 3/8-inch diameter polyethylene tubing was added to each well. All wells were purged with a peristaltic pump using low-flow purge (LFP) techniques. Wells were purged at approximately 100 mL per minute with continuous monitoring to confirm less than 0.3 feet of water level drawdown. Groundwater quality measurements including pH, specific conductivity, temperature, dissolved oxygen, and oxidation-reduction potential, and turbidity were recorded in consecutive timed intervals until stabilization occurred with three consecutive similar readings. Attachment A.2 provides a summary of the well purging data. Attachment A.3 provides the groundwater sample key. Attachment A.4 provides a summary table of the results, with the lab report provided in Attachment A.5, and the data validation report in Attachment A.6. It is important to note that the data validation report also covers samples collected from deep overburden well PFW-1, provided in a separate lab report.

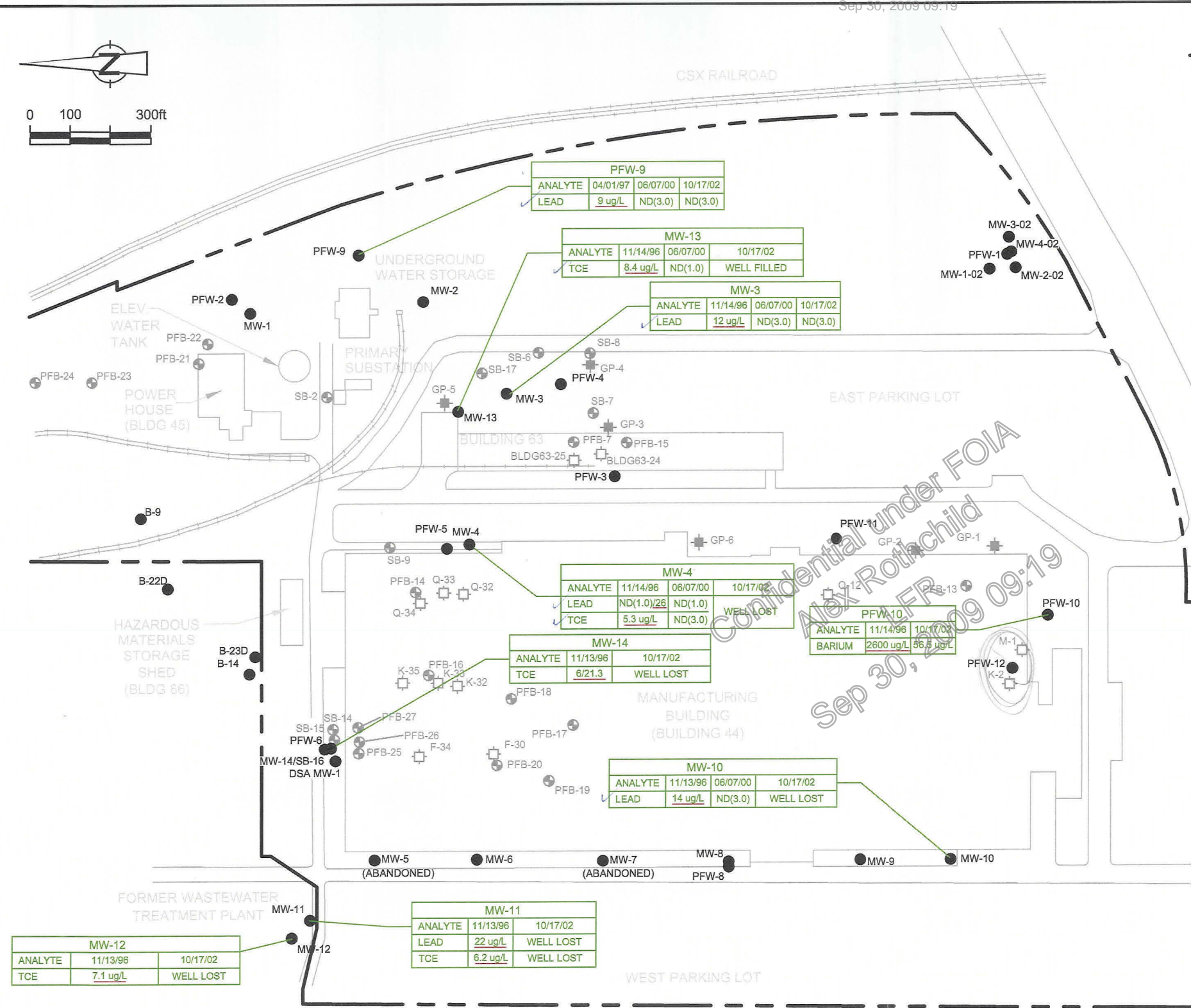
A review of Figure 5.13 (revised), in Attachment A.1, indicates that the 2002 sampling event results at MW-3 and PFW-9 confirm the RFI sampling results. PFW-10 was not sampled as part of the RFI, but pre-RFI results indicated elevated barium at 2600 µg/L. The 2002 sample result was 56.5 µg/L, less than the IDWC.

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ATTACHMENT A.1

Figure 5.13 (REVISED)

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MW-12			
ANALYTE	11/13/96	10/17/02	
LEAD	7.1 ug/L	WELL LOST	
TCE	7.1 ug/L	WELL LOST	

MW-11			
ANALYTE	11/13/96	10/17/02	
LEAD	22 ug/L	WELL LOST	
TCE	6.2 ug/L	WELL LOST	

PFW-9			
ANALYTE	04/01/97	06/07/00	10/17/02
LEAD	9 ug/L	ND(3.0)	ND(3.0)

MW-13			
ANALYTE	11/14/96	06/07/00	10/17/02
TCE	8.4 ug/L	ND(1.0)	WELL FILLED

MW-3			
ANALYTE	11/14/96	06/07/00	10/17/02
LEAD	12 ug/L	ND(3.0)	ND(3.0)

MW-4			
ANALYTE	11/14/96	06/07/00	10/17/02
LEAD	ND(1.0)	26 ND(1.0)	WELL LOST
TCE	5.3 ug/L	ND(3.0)	

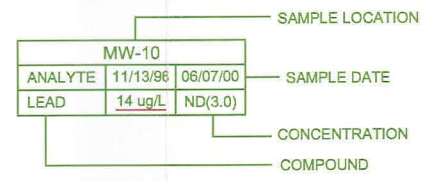
MW-14			
ANALYTE	11/13/96	10/17/02	
TCE	6/21.3	WELL LOST	

MW-10			
ANALYTE	11/13/96	06/07/00	10/17/02
LEAD	14 ug/L	ND(3.0)	WELL LOST

PFW-10			
ANALYTE	11/14/96	10/17/02	
BARIUM	2600 ug/L	56.8 ug/L	

LEGEND

- APPROXIMATE FACILITY BOUNDARY
- MW-7 ● STUDY 2 MONITORING WELL LOCATION AND NUMBER
- PFW-12 ● STUDY 4 MONITORING WELL LOCATION AND NUMBER
- B-9 ● GENERAL MOTORS RCRA UNIT CLOSURE MONITORING WELL LOCATION AND NUMBER
- MW1-02 ● GWNIAA MONITORING WELL LOCATION AND NUMBER
- MW-OBG ● DRUM AREA VERIFICATION SAMPLING PROGRAM MONITORING WELL LOCATION AND NUMBER
- PFB-17 ⊕ STUDY 4 SOIL BORING LOCATION AND NUMBER
- SB-9 ⊕ STUDY 2 SOIL BORING LOCATION AND NUMBER
- GP-1 ⊕ STUDY 1 GEOPROBE LOCATION AND NUMBER
- Q-34 ⊕ STUDY 2 GEOPROBE LOCATION AND NUMBER



— VALUE EXCEEDS INDUSTRIAL DRINKING WATER CRITERIA

INDUSTRIAL DRINKING WATER CRITERIA - OPERATIONAL MEMORANDUM #8, ACT 451 PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS (JUNE 7, 2000)

ANALYTE	CRITERIA
LEAD	4 ug/L
BARIUM	2,000 ug/L
TCE	5 ug/L

figure 5.13 revised

GROUNDWATER CHEMISTRY RESULTS
 FORMER PEREGRINE (US), INC. COLDWATER ROAD FACILITY
 Genesee Township, Michigan



April 24, 2003

ATTACHMENT A.2

**WELL PURGING/FIELD PARAMETERS
SECOND ROUND RFI GROUNDWATER SAMPLING**

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TABLE A.2

WELL PURGING DATA AND FIELD PARAMETERS
 SECOND ROUND RFI GROUNDWATER SAMPLING
 FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
 GENESSEE TOWNSHIP, MICHIGAN

Well Identification	Time Interval (hour, min.)	Purge Rate (mL/per min)	Water Level (ft. BTOR)	Draw Down (ft. BTOR)	pH (units)	Temperature (°C)	Specific Conductivity (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
MW-3	05:50	100	8.54	0.86	7.32	12.9	2.19	278	0.43	3.4
	05:55	100	8.65	0.97	7.26	12.9	2.20	281	0.38	4.2
	06:00	100	8.72	1.04	7.23	12.8	2.21	283	0.37	3.8
PFW-10	05:06	100	12.92	2.89	6.89	14.1	5.91	279	1.35	2.5
	05:11	100	13.29	3.26	6.90	14.0	5.90	278	1.29	2.4
	05:16	100	13.45	3.42	6.91	13.8	5.91	276	1.28	1.7
PFW-9	06:35	100	dry	0.32	7.65	10.5	1.83	49	5.30	37.8

** purged dry

Notes:

BTOR - Below top of riser

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ATTACHMENT A.3
SAMPLE KEY
SECOND ROUND RFI GROUNDWATER SAMPLING

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TABLE A.3
SAMPLE KEY
SECOND ROUND RFI GROUNDWATER SAMPLING
FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
GENESSEE TOWNSHIP, MICHIGAN

<i>Sample Identification</i>	<i>Sample Location</i>	<i>Date</i>	<i>Time</i>	<i>Description</i>	<i>Parameter</i>
GW-12636-101702-DD-004	MW-3	17-Oct-02	06:05	groundwater sample	dissolved lead
GW-12636-101702-DD-005	MW-3	17-Oct-02	06:10	duplicate of sample 004	dissolved lead
GW-12636-101702-DD-006	PFW-10	17-Oct-02	06:30	groundwater sample	dissolved barium
GW-12636-101702-DD-007	PFW-9	17-Oct-02	07:25	groundwater sample	dissolved lead

Notes:

Samples were transported under chain of custody (COC) protocol to Severn Trent Laboratory (STL) located in North Canton, Ohio to be analyzed within a standard two week timeframe.

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ATTACHMENT A.4
ANALYTICAL RESULTS SUMMARY
SECOND ROUND RFI GROUNDWATER SAMPLING

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TABLE A.4

ANALYTICAL RESULTS SUMMARY
 SECOND ROUND RFI GROUNDWATER SAMPLING
 FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
 GENESEE TOWNSHIP, MICHIGAN

Sample Location: Groundwater Unit:	MW-3 Shallow Perched Zone GW-12636-101702-DD-004 10/17/2002	MW-3 Shallow Perched Zone GW-12636-101702-DD-005 10/17/2002 Duplicate	PFW-9 Shallow Perched Zone GW-12636-101702-DD-007 10/17/2002	PFW-10 Shallow Perched Zone GW-12636-101702-DD-006 10/17/2002
Sample ID:				
Sample Date:				
Parameters				
Units				
Metals				
Barium (Dissolved)	--	ND (3.0)	ND (3.0)	56.5
Lead (Dissolved)	ND (3.0)	ND (3.0)	ND (3.0)	--

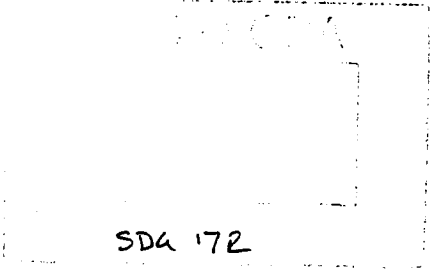
Notes:
 ND () - Non detect at associated value.

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ATTACHMENT A.5
ANALYTICAL REPORT
SECOND ROUND RFI GROUNDWATER SAMPLING

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SDA 172

ANALYTICAL REPORT

PROJECT NO. 12636-40

FORMER PEREGRINE

Lot #: A2J180273

Paul Wiseman

Conestoga Rovers & Assoc., Inc
14496 Sheldon Rd Suite 200
Plymouth, MI 48170

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ORIGINAL ANALYTICAL REPORT

Project#: 12636 Lab#: A2J180273

SEVERN TRENT LABORATORIES, INC.

Name: Former Peregrine

Description

Event: Groundwater RFI

Samples: 4 waters

Analysis: metals

TAT: STD

Lab: STL-NC

Checked Against Preliminary Data:

Date: 12/18/02 Init.: RCW

Date of Validation Memo: 12/19/02

Invoice Approval Date: _____

Comments: _____

Amy McCormick

Amy L. McCormick
Project Manager

November 27, 2002

Severn Trent Laboratories, Inc.
STL North Canton • 4101 Shuffel Drive NW, North Canton, OH 44720
Tel 330 497 9396 Fax 330 497 0772 • www.stl-inc.com



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CASE NARRATIVE

CASE NARRATIVE

A2J180273

The following report contains the analytical results for four water samples submitted to STL North Canton by Conestoga-Rovers & Associates, Inc. from the Former Peregrine Site, project number 12636-40. The samples were received October 18, 2002, according to documented sample acceptance procedures.

Metals were analyzed at STL's Denver, Colorado facility.

The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. Preliminary results were provided to the Chemistry Department on November 1, 2002. A summary of QC data for these analyses is included at the rear of the report.

Results for all analyses were evaluated to the method detection limit.

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STL utilizes USEPA approved methods in all analytical work. The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.


Amy McCormick
Project Manager

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride
Acetone
2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper
Iron
Zinc
Lead*

- for analyses run on TJA Trace ICP, ICPMS or GFAA only
- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is repped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be repped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048),
Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001),
New York (#10975), North Dakota (#R-156), Ohio (#6090), Ohio VAP (#CL0024),
Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003),
Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY,
USDA Soil Permit, ACIL Seal of Excellence - Participating Lab Status Award (#82)





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METHOD REFERENCE

ANALYTICAL METHODS SUMMARY

A2J180273

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

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SAMPLE SUMMARY

SAMPLE SUMMARY

A2J180273

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
FACJB	001	GW-12636-101702-DD-004	10/17/02	06:01
FACKH	002	GW-12636-101702-DD-005	10/17/02	06:10
FACKL	003	GW-12636-101702-DD-006	10/17/02	06:30
FACLC	004	GW-12636-101702-DD-007	10/17/02	07:21

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

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SHIPPING AND RECEIVING DOCUMENTS

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CRA

CONESTOGA-ROVERS & ASSOCIATES, INC.
 14496 Sheldon Road, Suite 200
 Plymouth, MI 48170 • (734) 453-5123

CHAIN OF CUSTODY RECORD

SHIPPED TO (Laboratory Name):
 Seven Treat Lbs - North Canton

REFERENCE NUMBER:
 13636-40

PROJECT NAME:
 Finner Preserve

SAMPLERS SIGNATURE: *Don Vertner* PRINTED NAME: **Don Vertner**

SEQ. NO.	DATE	TIME	DESCRIPTION	SAMPLE TYPE	% OF CONTAINERS	PARAMETERS	REMARKS
1	10-17-09	0605	Site - 13636-40-101702-100-C05	Water	1	✓	Reduced volume
2	10-17-09	0610	Site - 13636-40-101702-100-C05	Water	1	✓	Scale HM-177
3	10-17-09	0615	Site - 13636-40-101702-100-C05	Water	1	✓	Red contact; Anal. Use 7/17
TOTAL NUMBER OF CONTAINERS: 4							

RELINQUISHED BY: *Don Vertner* DATE: 10-17-09 TIME: 1500 RECEIVED BY: 1. DATE: TIME: 2. DATE: TIME: 3. DATE: TIME:

METHOD OF SHIPMENT: **FELP-EX**

AIR BILL NO.

7330 - Full/Emailed Copy
 7330 - Receiving Laboratory Copy
 Pink - Shipper Copy
 Gold/Red - Sampler Copy

SAMPLE TEAM:
Don Vertner

RECEIVED FOR LABORATORY BY:
Kevin Buehler

2203

DATE: 10/13/09 TIME: 9:15

RSR280
 Client: 57787
 Lot #: A2J180273
 Case Number/SDG: 12636-40
 Storage Location: OUT

Severn Trent Laboratories, Inc.
 Sample Control Record

Laboratory Sample I.D.	Transferred By	Date	Entered	Removed	Reason	Date Returned
FACJ8	STILLERJ	10/18/02	Yes		Storage	
FACJH	STILLERJ	10/18/02	Yes		Storage	
FACKL	STILLERJ	10/18/02	Yes		Storage	
FACJC	STILLERJ	10/18/02	Yes		Storage	

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STL Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: A2J15027 B

Client: CSA Project: _____ Quote #: 34313
 Cooler Received on: 10-18-09 Opened on: 10-18-09 by: [Signature]
 (Signature)

Fedx Client Drop Off UPS Airborne Other: _____
 Cooler Safe Foam Box Client Cooler Other: _____

STL Shipper No#: STL HI 1177

1. Were custody seals on the outside of the cooler? Yes No Intact? Yes No NA
 If YES, Quantity 1 Location over closure
 Were the custody seals signed and dated? Yes No NA
 2. Shipper's packing slip attached to this form? Yes No
 3. Were custody papers included inside the cooler and relinquished? Yes No
 4. Did you sign the custody papers in the appropriate place? Yes No

5. Packing material used:
 Peanuts Bubble Wrap Vermiculite Foam None Other: _____

6. Cooler temperature upon receipt 3.3 °C (see back of form for multiple coolers/temp)
 METHOD: Temp Vial Coolant & Sample Against Bottles IR ICE/H₂O Slurry
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Did all bottle labels and tags agree with the custody papers? Yes No
 9. Were samples at the correct pH? (record on back) Yes No NA
 10. Were correct bottles used for the tests indicated? Yes No
 11. Were air bubbles >6 mm in any VOA vials? Yes No NA
 12. Was a sufficient amount of sample sent in each bottle? Yes No

Contacted PM _____ Date: _____ by: _____ via Voice Mail Verbal Other
 Concerning: _____

MACRO MACRO

1. CHAIN OF CUSTODY

SR1A The chain of custody and sample bottles did not agree. The following discrepancies occurred _____

2. SAMPLE CONDITION

SR2A Sample(s) _____ were received or requested after the recommended holding time had expired.
 SR2B Sample(s) _____ were received with insufficient volume.
 SR2C Sample(s) _____ were received in a broken container.

3. SAMPLE PRESERVATION

SR3A Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s).
Nitric Acid Lot # 120701-HNO3; Sulfuric Acid Lot # 0110802-H2SO4; Sodium Hydroxide Lot # 011102-NaOH; Hydrochloric Acid Lot # 020501-HCl; Sodium Hydroxide and Zinc Acetate Lot # 112801-C713C0022N-NaOH
 SR3B Sample(s) _____ were received with bubble > 6 mm in diameter (cc: PMI)

4. Other (see below or back)



STL DENVER DATA

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CONESTOGA ROVERS & ASSOC., INC.

Client Sample ID: GW-12636-101702-DD-004

DISSOLVED Metals

Lot-Sample #...: A2J180273-001

Matrix.....: WG

Date Sampled...: 10/17/02 06:05 Date Received...: 10/18/02

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 2296360						
Lead	ND	3.0	ug/L	SW846 6010B	10/28-10/29/02	FACJ81AA
		Dilution Factor: 1				

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FORM 1
Equivalent

CONESTOGA ROVERS & ASSOC., INC.

Client Sample ID: **GW-12636-101702-DD-005**

DISSOLVED Metals

Lot-Sample #...: **A2J180273-002**

Matrix.....: **WG**

Date Sampled...: **10/17/02 06:10** Date Received...: **10/18/02**

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 2296360						
Lead	ND	3.0	ug/L	SW846 6010B	10/28-10/29/02	PACKH1AA
		Dilution Factor: 1				

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FORM 1
Equivalent

CONESTOGA ROVERS & ASSOC., INC.

Client Sample ID: GW-12636-101702-DD-006

DISSOLVED Metals

Lot-Sample #...: A2J180273-003

Matrix.....: WG

Date Sampled...: 10/17/02 06:30 Date Received...: 10/18/02

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 2296360						
Barium	56.5	10.0	ug/L	SW846 6010B	10/28-10/29/02	FACKL1AA
		Dilution Factor: 1				

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FORM 1
Equivalent

CONESTOGA ROVERS & ASSOC., INC.

Client Sample ID: GW-12636-101702-DD-007

DISSOLVED Metals

Lot-Sample #...: A2J180273-004

Matrix.....: WG

Date Sampled...: 10/17/02 07:25 Date Received...: 10/18/02

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 2296360						
Lead	ND	3.0	ug/L	SW846 6010B	10/28-10/29/02	FACLC1AA
		Dilution Factor: 1				

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FORM 1
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METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: A2J180273

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: D2J230000-360 Prep Batch #...: 2296360						
Barium	ND	10.0	ug/L	SW846 6010B	10/28-10/29/02	FAK1X1AK
		Dilution Factor: 1				
Lead	ND	3.0	ug/L	SW846 6010B	10/28-10/29/02	FAK1X1AL
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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FORM 3
Equivalent

STL DENVER

DISSOLVED METALS

-3-

BLANKS

Contract: CONESTOGA ROVERS & ASSOC., INC.

Lab Code: STLDEN Case No.: _____ SAS No.: _____ SDG NO.: A2J180273

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank			
		C	1	C	2	C	3	C	C	M	
Barium	1.80 U		1.80 U		1.80 U		1.80 U		1.8 U	U	P
Lead	2.00 U		2.00 U		2.00 U		2.00 U		2.0 U	U	P

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Comments:

STL DENVER

DISSOLVED METALS

-3-

BLANKS

Contract: CONESTOGA ROVERS & ASSOC., INC.

Lab Code: STLDEN

Case No.: _____

SAS No.: _____

SDG NO.: A2J180273

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Preparation Blank	
		C	1	C	2	C	3	C	M
Barium			1.80	U	1.80	U			P
Lead			2.00	U	2.00	U			P

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Comments:

MATRIX SPIKE SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: A2J100273

Matrix.....: WATER

Date Sampled...: 10/16/02 16:57 Date Received...: 10/19/02

<u>PARAMETER</u>	<u>SAMPLE AMOUNT</u>	<u>SPIKE AMT</u>	<u>MEASRD AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECVRY</u>	<u>RPD</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
------------------	----------------------	------------------	----------------------	--------------	-----------------------	------------	---------------	-----------------------------------	---------------------

MS Lot-Sample #: D2J190202-001 Prep Batch #...: 2296360

Barium

18.3	2000	2050	ug/L	101		SW846 6010B	10/28-10/29/02	FAEM81AU
18.3	2000	2040	ug/L	101	0.10	SW846 6010B	10/28-10/29/02	FAEM81AV

Dilution Factor: 1

Lead

ND	500	485	ug/L	97		SW846 6010B	10/28-10/29/02	FAEM81AX
ND	500	485	ug/L	97	0.04	SW846 6010B	10/28-10/29/02	FAEM81AO

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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FORM 5A
Equivalent

MATRIX SPIKE SAMPLE EVALUATION REPORT

DISSOLVED Metals

Client Lot #...: A2J180273

Matrix.....: WATER

Date Sampled...: 10/16/02 16:57 Date Received...: 10/19/02

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MS Lot-Sample #: D2J190202-001 Prep Batch #...: 2296360							
Barium	101	(94 - 114)			SW846 6010B	10/28-10/29/02	FAEM81AU
	101	(94 - 114)	0.10	(0-20)	SW846 6010B	10/28-10/29/02	FAEM81AV
			Dilution Factor: 1				
Lead	97	(91 - 112)			SW846 6010B	10/28-10/29/02	FAEM81AX
	97	(91 - 112)	0.04	(0-20)	SW846 6010B	10/28-10/29/02	FAEM81A0
			Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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FORM 5A
Equivalent

LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: A2J180273

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: D2J230000-360 Prep Batch #...: 2296360							
Barium	2000	2080	ug/L	104	SW846 6010B	10/28-10/29/02	FAK1X1AM
			Dilution Factor: 1				
Lead	500	506	ug/L	101	SW846 6010B	10/28-10/29/02	FAK1X1AM
			Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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FORM 7
Equivalent

LABORATORY CONTROL SAMPLE EVALUATION REPORT

DISSOLVED Metals

Client Lot #....: A2J180273

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: D2J230000-360			Prep Batch #....: 2296360		
Barium	104	(94 - 114)	SW846 6010B	10/28-10/29/02	FAK1X1AM
		Dilution Factor: 1			
Lead	101	(91 - 112)	SW846 6010B	10/28-10/29/02	FAK1X1AM
		Dilution Factor: 1			

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

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FORM 7
Equivalent

April 24, 2003

ATTACHMENT A.6
DATA VALIDATION REPORT
SECOND ROUND RFI GROUNDWATER SAMPLING


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**CONESTOGA-ROVERS
& ASSOCIATES**

MEMORANDUM

TO: Sylvie Eastman REF. NO.: 12636

FROM: Paul Wiseman/mw/155/Det.  DATE: December 19, 2002

RE: Data Quality Assessment and Validation – Expanded Deliverables
Former Peregrine (US) Inc. Coldwater Road Facility
Genesee Township, Michigan

The following details a quality assessment and validation of the analytical data resulting from the October 8, 9, and 17, 2002 collection of eight (8) water samples including two (2) quality control samples from the Coldwater Road Facility, in Genesee Township. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at Severn Trent Laboratories in North Canton, Ohio (STL) with the exception of metals analysis which was completed at STL in Denver, Colorado in accordance with the methodologies presented in Table 2. The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP)¹

Holding Time Period and Sample Analysis

The holding time periods are presented in Table 3. The samples, as indicated by the sample collection, extraction and analysis dates on the chain-of-custody forms and analytical reports provided by STL were prepared and analyzed within the required holding time periods.

Gas Chromatography/Mass Spectrometer Mass Calibration (Instrument Performance Check)

To ensure adequate mass resolution, identification, and to some degree, sensitivity; the performance of each gas chromatography/mass spectrometry (GC/MS) instrument used for volatile organic compounds (VOC) analyses was checked at the beginning of each 12-hour period using bromofluorobenzene (BFB). The results of all instrument performance checks were within the acceptance criteria, indicating acceptable instrument performance.

Initial Calibration – Organics

Initial calibration data were used to demonstrate that each instrument was capable of generating acceptable quantitative data. Initial calibration criteria for organic analyses required that all compounds meet a method-specific minimum mean relative response factor (RRF) and a maximum percent relative standard deviation (RSD). The initial calibration data for organic analyses were within the acceptance criteria indicating the instruments were capable of acceptable performance prior to analysis.

¹ Application of quality assurance criteria was consistent with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-94/012, February 1994 and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review", EPA-540/R-94/013, February 1994.

CRA MEMORANDUM

Initial Calibration – Inorganics

The initial calibration criteria for inorganic analysis require an initial calibration verification standard be analyzed within a method-specific percent recovery of the accepted or true value. The initial calibration data for the inorganic analyses were within the acceptance criteria indicating the instruments were capable of acceptable performance prior to analysis.

Continuing Calibration – Organics

To ensure that each instrument was capable of producing acceptable quantitative data over the analysis period, routine checks upon the instrument calibrations were performed. Continuing calibration acceptance criteria for organic analyses required that compounds meet a method-specific minimum RRF and maximum percent difference (D) between the initial calibration mean RRF and the continuing calibration RRF. Table 4 presents the samples which should be qualified due to violation of continuing calibration criteria. The remaining continuing calibration verification data were within the acceptance criteria.

Continuing Calibration – Inorganics

Continuing calibration criteria for inorganic analyses were the same criteria as used for assessing the initial calibration data. The continuing calibration verification data were within the acceptance criteria.

Method Blank Samples – Organics

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analyses of method blank samples. The laboratory method blank was reported with methylene chloride detected but the associated sample results were reported non-detect therefore, no qualification was required.

Laboratory Blank Samples – Inorganics

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analysis of initial calibration blanks (ICB), continuing calibration blanks (CCB) and method blank samples. Several ICB/CCBs were reported with detectable concentrations but the associated sample results were either non-detect or five (5) times greater than the ICB/CCB therefore, no qualification was required. The method blank samples were reported to be free from detectable concentrations of target analytes, indicating no laboratory-attributable contamination occurred.

Laboratory Control Sample Analysis

The laboratory control sample (LCS) analyses serve as a monitor of the overall performance in all steps of the sample analysis. The LCS percent recoveries were within the laboratory control limits, indicating that an acceptable level of overall performance was achieved.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for the organic analyses was monitored by assessing the results of surrogate compound percent recoveries. The surrogate recovery acceptance criteria was met for all samples.

Inductively Coupled Plasma Interference Check Sample Analysis – Inorganics

To verify that proper inter-element and background correction factors had been established by the laboratory for metals analyses, the inductively coupled plasma interference check sample data was monitored. The data were within the acceptance criteria.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries - Inorganics

Matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were monitored to determine the effects of sample matrix on the laboratories digestion and measurement methods. Non Site-specific samples were utilized for MS/MSD analysis, therefore qualification of samples associated with these MS/MSDs was not performed.

Serial Dilution – Inorganics

The percent difference (D) between serial dilutions of a sample from each matrix were monitored to determine if physical or chemical interference may be present. The percent D acceptance criteria was met.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries - Organics

To assess the long term accuracy and precision of the analytical methods on various matrices, MS/MSD percent recoveries and the RPD of the concentrations were determined. Non Site-specific samples were utilized for MS/MSD analysis, therefore qualification of samples associated with these MS/MSDs was not performed.

Internal Standard Summaries - Organics

Overall instrument stability and performance for the VOC analyses was monitored using internal standard peak area and retention time (RT) data. Internal standard peak areas of the samples were required to fall within method-specific percent recovery of their respective internal standard areas in the continuing calibration standard. The RT for each internal standard in the samples were required to be within method-specific time intervals of their respective internal standard RT in the continuing calibration standard. The VOC internal standard and retention time data were within the acceptance criteria.

Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to identification criteria established by the methods. The organics reported adhered to the specified identification criteria.

CRA MEMORANDUM

Compound Quantitation

The reported quantitation results and detection limits were checked to ensure results reported were accurate. No discrepancies were found between the raw data and the sample results reported by the laboratory.

Field Quality Assurance/Quality Control

The field quality assurance/quality control consisted of one (1) field duplicate sample and one (1) trip blank sample. Overall precision for the sampling event and laboratory procedures was monitored using the results of the field duplicate sample set. No target analytes were reported detected in the field duplicate sample set.

To monitor potential cross-contamination of VOC during aqueous sample transportation and storage, a trip blank was submitted to the laboratory for VOC analysis with each shipping cooler containing multiple samples. Although two (2) analytes were reported detected in the trip blank sample these analytes were not detected in the investigative samples, therefore no data qualification was required.

System Performance

System performance between various quality control checks was evaluated to monitor for changes that may have caused the degradation of data quality. No technical problems or chromatographic anomalies were observed which require qualification of the data.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used with the qualifications noted.

TABLE 1

**SAMPLE SUMMARY
FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
GENESEE TOWNSHIP, MICHIGAN**

<i>Sample Identification</i>	<i>Sample Location</i>	<i>Matrix</i>	<i>QC Samples</i>	<i>Parameter</i>
GW-12636-100802-DD-001	PFW-1	Water		VOCs, dissolved lead
GW-12636-100802-DD-002	PFW-1	Water		VOCs, dissolved lead
GW-12636-100902-DD-003	PFW-1	Water		VOCs, dissolved lead
TB-12636-100902-DD-004		Water	trip blank	VOCs
GW-12636-101702-DD-004	MW-3	Water		dissolved lead
GW-12636-101702-DD-005	MW-3	Water	Duplicate of Sample 004	dissolved lead
GW-12636-101702-DD-006	PFW-10	Water		dissolved barium
GW-12636-101702-DD-007	PFW-9	Water		dissolved lead

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TABLE 2

**SUMMARY OF ANALYTICAL METHODS
FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
GENESEE TOWNSHIP, MICHIGAN**

<i>Parameter</i>	<i>Method</i>
Target Compound List (TCL) Volatile Organic Compounds (VOC)	SW-846 8260B ¹
Metals	
Barium	SW-846 6010B
Lead	SW-846 6010B

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¹ SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3rd Edition, and Promulgated updates, November 1986.

TABLE 3

**HOLDING TIME PERIODS
FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
GENESEE TOWNSHIP, MICHIGAN**

<i>Analysis</i>	<i>Matrix</i>	<i>Holding Time Period</i>
TCL VOC	Water	- 14 days from sample collection to completion of analysis
Metals (Lead and Barium)	Water	- 180 days from sample collection to completion of analysis

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TABLE 4

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
VIOLATION OF CONTINUING CALIBRATION ACCEPTANCE CRITERIA
FORMER PEREGRINE (US) INC. COLDWATER ROAD FACILITY
GENESEE TOWNSHIP, MICHIGAN**

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
VOC	Acetone	TB-12636-100902-DD-004	J
	2-Butanone		J
	2-Hexanone		UJ

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¹ The parameter results should be qualified for the listed samples as:

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (for detected parameters).

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analytes in the sample (for non-detected parameters).

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