0079015

# SAF-RC-006
# 100-N Ancillary Facilities & 190-DR Other Solid Sampling for ERDF Waste Designation
# FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

Tom Edmundson X5-50 KW 10/20/08
INITIAL/DATE

**COMMENTS:**

**SDG K1345 SAF-RC-006**

Rad only X Chem only Rad & Chem

X Complete Partial

**Waste Site(s): 184-ND Oil Stained Soil**

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NOV 03 2008
EDMC

LIONVILLE LABORATORY INC.

15 October 2008

RECEIVED OCT 2008

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H9-03
Richland, WA 99354

**Subject:** Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

| | |
|---|---|
| LvLI Batch # | 0809L173 |
| SDG # | K1345 |
| SAF # | RC-006 |
| Date Received | 9/25/08 |
| # Samples | 1 |
| Matrix | OTHER SOLID |
| Volatiles | X |
| Semivolatiles | X |
| Pest/PCB | |
| Glycols | |
| DRO/KRO/GRO | X |
| GC Alcohols | |
| Herbicides | |
| Metals | X |
| Inorganics | |

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager
d:\b_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

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OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J17J67 | | | | | | |
| SILVER, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SILVER, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SILVER, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ARSENIC, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ARSENIC, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ARSENIC, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BORON, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BORON, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BORON, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BARIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BARIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BARIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BERYLLIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BERYLLIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| BERYLLIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CALCIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CALCIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CALCIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CADMIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CADMIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CADMIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CHROMIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CHROMIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| CHROMIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| COPPER, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| COPPER, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| COPPER, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| MERCURY, TOTAL | 001 | SO | 08C0174 | 09/22/08 | 09/30/08 | 10/01/08 |
| MERCURY, TOTAL | 001 REP | SO | 08C0174 | 09/22/08 | 09/30/08 | 10/01/08 |
| MERCURY, TOTAL | 001 MS | SO | 08C0174 | 09/22/08 | 09/30/08 | 10/01/08 |
| LITHIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| LITHIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| LITHIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| MANGANESE, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| MANGANESE, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| MANGANESE, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SODIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SODIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SODIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| NICKEL, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| NICKEL, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| NICKEL, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| LEAD, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| LEAD, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| LEAD, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ANTIMONY, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ANTIMONY, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| ANTIMONY, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SELENIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SELENIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| SELENIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| THALLIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| THALLIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| THALLIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| VANADIUM, TOTAL | 001 | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| VANADIUM, TOTAL | 001 REP | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |
| VANADIUM, TOTAL | 001 MS | SO | 08L0355 | 09/22/08 | 09/29/08 | 10/10/08 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SILVER LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| SILVER, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| ARSENIC LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| ARSENIC, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BORON LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BORON, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BARIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BARIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BERYLLIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| BERYLLIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| CALCIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| CALCIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| CADMIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CADMIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| CHROMIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| CHROMIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| COPPER LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| COPPER, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| MERCURY LABORATORY | LC1 BS | S | 08C0174 | N/A | 09/30/08 | 10/01/08 |
| MERCURY, TOTAL | MB1 | S | 08C0174 | N/A | 09/30/08 | 10/01/08 |
| LITHIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| LITHIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| MANGANESE LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| MANGANESE, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| SODIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| SODIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| NICKEL LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| NICKEL, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| LEAD LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| LEAD, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| ANTIMONY LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| ANTIMONY, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| SELENIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| SELENIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| THALLIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| THALLIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| VANADIUM LABORATORY | LC1 BS | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |
| VANADIUM, TOTAL | MB1 | S | 08L0355 | N/A | 09/29/08 | 10/10/08 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** WC-HANFORD RC-006
**LVL#:** 0809L173
**SDG/SAF#:** K1345/RC-006

**W.O.#:** 60049-001-001-0001-00
**Date Received:** 09-25-08

**METALS CASE NARRATIVE**

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

1. This narrative covers the analysis of 1 solid sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample results are reported on a wet weight, 'as received' basis.

   The sample was run with a 3-fold dilution for ICP metals due to sample matrix.

3. All analyses were performed within the required holding times.

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ).

6. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB result for Sodium was greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection} and the sample read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample result was reported herein "uncorrected" for the levels found in the MB.

7. All ICP Interference Check Standards were within control limits.

8. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

| Sample ID | Element | PDS Concentration (ppb) | PDS % Recovery |
|---|---|---|---|
| J17J67 | Antimony | 300 | 100.2 |
| | Lead | 300 | 102.9 |

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.

13. LvLI is NELAP accredited by the state of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated
alm/m09-173

10/15/08
Date

LIONVILLE LABORATORY INC.

# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within tl

Lot#: 08092173

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

## Metals Analysis Methods

| | SW846 | | EPA | | STD MTD | EPA OSWR | USATHAMA |
|---|---|---|---|---|---|---|---|
| Aluminum | 6010B | | 200.7 | | | | 99 |
| Antimony | ✓6010B | 7041 [5] | 200.7 | 204.2 | | | 99 |
| Arsenic | ✓6010B | 7060A [5] | 200.7 | 206.2 | 3113B | | 99 |
| Barium | ✓6010B | | 200.7 | | | | 99 |
| Beryllium | ✓6010B | | 200.7 | | | | 99 |
| Bismuth | 6010B [1] | | 200.7 [1] | | | 1620 | 99 |
| Boron | ✓6010B | | 200.7 | | | | 99 |
| Cadmium | ✓6010B | 7131A [5] | 200.7 | 213.2 | | | 99 |
| Calcium | ✓6010B | | 200.7 | | | | 99 |
| Chromium | ✓6010B | 7191 [5] | 200.7 | 218.2 | | | SS17 |
| Cobalt | 6010B | | 200.7 | | | | 99 |
| Copper | ✓6010B | 7211 [5] | 200.7 | 220.2 | | | 99 |
| Iron | 6010B | | 200.7 | | | | 99 |
| Lead | ✓6010B | 7421 [5] | 200.7 | 239.2 | 3113B | | 99 |
| Lithium | ✓6010B | 7430 [4] | 200.7 | | | 1620 | 99 |
| Magnesium | 6010B | | 200.7 | | | | 99 |
| Manganese | ✓6010B | | 200.7 | | | | 99 |
| Mercury | 7470A [3] | ✓7471A [3] | 245.1 [2] | 245.5 [2] | | | 99 |
| Molybdenum | 6010B | | 200.7 | | | | 99 |
| Nickel | ✓6010B | | 200.7 | | | | 99 |
| Potassium | 6010B | 7610 [4] | 200.7 | 258.1 [4] | | | 99 |
| Rare Earths | 6010B [1] | | 200.7 [1] | | | 1620 | 99 |
| Selenium | ✓6010B | 7740 [5] | 200.7 | 270.2 | 3113B | | 99 |
| Silicon | 6010B [1] | | 200.7 | | | 1620 | 99 |
| Silica | 6010B | | 200.7 | | | 1620 | 99 |
| Silver | ✓6010B | 7761 [5] | 200.7 | 272.2 | | | 99 |
| Sodium | ✓6010B | 7770 [4] | 200.7 | 273.1 [4] | | | 99 |
| Strontium | 6010B | | 200.7 | | | | 99 |
| Thallium | ✓6010B | 7841 [5] | 200.7 | 279.2 | 200.9 | | 99 |
| Tin | 6010B | | 200.7 | | | | 99 |
| Titanium | 6010B | | 200.7 | | | | 99 |
| Uranium | 6010B [1] | | 200.7 [1] | | | 1620 | 99 |
| Vanadium | ✓6010B | | 200.7 | | | | 99 |
| Zinc | 6010B | | 200.7 | | | | 99 |
| Zirconium | 6010B [1] | | 200.7 [1] | | | 1620 | 99 |

Method: _____

# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

## ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

## ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/13/08

CLIENT: WC-HANFORD RC-006 K1345 LVL LOT #: 0809L173

WORK ORDER: 60049-001-001-0001-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | J17J67 | Silver, Total | 0.22 u | MG/KG | 0.22 | 3.0 |
| | | Arsenic, Total | 2.6 | MG/KG | 1.1 | 3.0 |
| | | Boron, Total | 1.1 | MG/KG | 1.1 | 3.0 |
| | | Barium, Total | 57.9 | MG/KG | 0.22 | 3.0 |
| | | Beryllium, Total | 0.11 u | MG/KG | 0.11 | 3.0 |
| | | Calcium, Total | 6590 | MG/KG | 8.6 | 3.0 |
| | | Cadmium, Total | 0.11 u | MG/KG | 0.11 | 3.0 |
| | | Chromium, Total | 10.7 | MG/KG | 0.43 | 3.0 |
| | | Copper, Total | 16.5 | MG/KG | 0.43 | 3.0 |
| | | Mercury, Total | 0.009u | MG/KG | 0.009 | 1.0 |
| | | Lithium, Total | 6.0 | MG/KG | 0.09 | 3.0 |
| | | Manganese, Total | 342 | MG/KG | 0.09 | 3.0 |
| | | Sodium, Total | 234 | MG/KG | 4.3 | 3.0 |
| | | Nickel, Total | 14.2 | MG/KG | 0.43 | 3.0 |
| | | Lead, Total | 5.1 | MG/KG | 0.65 | 3.0 |
| | | Antimony, Total | 0.88 | MG/KG | 0.65 | 3.0 |
| | | Selenium, Total | 1.3 u | MG/KG | 1.3 | 3.0 |
| | | Thallium, Total | 1.3 u | MG/KG | 1.3 | 3.0 |
| | | Vanadium, Total | 57.5 | MG/KG | 0.30 | 3.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/13/08

CLIENT: WC-HANFORD RC-006 K1345 LVL LOT #: 0809L173

WORK ORDER: 60049-001-001-0001-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| BLANK1 | 08L0355-MB1 | Silver, Total | 0.10 u | MG/KG | 0.10 | 1.0 |
| | | Arsenic, Total | 0.50 u | MG/KG | 0.50 | 1.0 |
| | | Boron, Total | 0.50 u | MG/KG | 0.50 | 1.0 |
| | | Barium, Total | 0.24 | MG/KG | 0.10 | 1.0 |
| | | Beryllium, Total | 0.05 u | MG/KG | 0.05 | 1.0 |
| | | Calcium, Total | 13.1 | MG/KG | 4.0 | 1.0 |
| | | Cadmium, Total | 0.05 u | MG/KG | 0.05 | 1.0 |
| | | Chromium, Total | 0.20 u | MG/KG | 0.20 | 1.0 |
| | | Copper, Total | 0.59 | MG/KG | 0.20 | 1.0 |
| | | Lithium, Total | 0.06 | MG/KG | 0.04 | 1.0 |
| | | Manganese, Total | 0.04 u | MG/KG | 0.04 | 1.0 |
| | | Sodium, Total | 15.2 | MG/KG | 2.0 | 1.0 |
| | | Nickel, Total | 0.35 | MG/KG | 0.20 | 1.0 |
| | | Lead, Total | 0.30 u | MG/KG | 0.30 | 1.0 |
| | | Antimony, Total | 0.30 u | MG/KG | 0.30 | 1.0 |
| | | Selenium, Total | 0.60 u | MG/KG | 0.60 | 1.0 |
| | | Thallium, Total | 0.60 u | MG/KG | 0.60 | 1.0 |
| | | Vanadium, Total | 0.14 u | MG/KG | 0.14 | 1.0 |
| BLANK1 | 08C0174-MB1 | Mercury, Total | 0.01 u | MG/KG | 0.01 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/13/08

CLIENT: WC-HANFORD RC-006 K1345 LVL LOT #: 0809L173

WORK ORDER: 60049-001-001-0001-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -001 | J17J67 | Silver, Total | 3.3 | 0.22u | 3.6 | 92.4 | 3.0 |
| | | Arsenic, Total | 133 | 2.6 | 143 | 91.1 | 3.0 |
| | | Boron, Total | 66.1 | 1.1 | 71.4 | 91.0 | 3.0 |
| | | Barium, Total | 187 | 57.9 | 143 | 90.2 | 3.0 |
| | | Beryllium, Total | 3.4 | 0.11u | 3.6 | 95.0 | 3.0 |
| | | Calcium, Total | 8800 | 6590 | 1780 | 123.9 | 3.0 |
| | | Cadmium, Total | 3.4 | 0.11u | 3.6 | 95.8 | 3.0 |
| | | Chromium, Total | 26.2 | 10.7 | 14.3 | 108.2 | 3.0 |
| | | Copper, Total | 32.8 | 16.5 | 17.8 | 91.5 | 3.0 |
| | | Mercury, Total | 0.16 | 0.00u | 0.15 | 107.5 | 1.0 |
| | | Lithium, Total | 78.3 | 6.0 | 71.4 | 101.3 | 3.0 |
| | | Manganese, Total | 378 | 342 | 35.7 | 99.9* | 3.0 |
| | | Sodium, Total | 1930 | 234 | 1780 | 95.2 | 3.0 |
| | | Nickel, Total | 48.2 | 14.2 | 35.7 | 95.1 | 3.0 |
| | | Lead, Total | 51.1 | 5.1 | 35.7 | 128.8 | 3.0 |
| | | Antimony, Total | 19.3 | 0.88 | 35.7 | 51.7 | 3.0 |
| | | Selenium, Total | 115 | 1.3 u | 143 | 80.5 | 3.0 |
| | | Thallium, Total | 136 | 1.3 u | 143 | 95.4 | 3.0 |
| | | Vanadium, Total | 90.2 | 57.5 | 35.7 | 91.7 | 3.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/13/08

CLIENT: WC-HANFORD RC-006 K1345 LVL LOT #: 0809L173

WORK ORDER: 60049-001-001-0001-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -001REP | J17J67 | Silver, Total | 0.22u | 0.22u | NC | 3.0 |
| | | Arsenic, Total | 2.6 | 2.2 | 16.7 | 3.0 |
| | | Boron, Total | 1.1 | 1.1 u | ~~NC~~ * 200 | 3.0 |
| | | Barium, Total | 57.9 | 49.1 | 16.4 | 3.0 |
| | | Beryllium, Total | 0.11u | 0.11u | NC | 3.0 |
| | | Calcium, Total | 6590 | 6850 | 3.8 | 3.0 |
| | | Cadmium, Total | 0.11u | 0.11 | ~~NC~~ * 200 | 3.0 |
| | | Chromium, Total | 10.7 | 9.9 | 7.8 | 3.0 |
| | | Copper, Total | 16.5 | 16.4 | 0.61 | 3.0 |
| | | Mercury, Total | 0.00u | 0.00u | NC | 1.0 |
| | | Lithium, Total | 6.0 | 6.3 | 4.9 | 3.0 |
| | | Manganese, Total | 342 | 327 | 4.5 | 3.0 |
| | | Sodium, Total | 234 | 215 | 8.1 | 3.0 |
| | | Nickel, Total | 14.2 | 13.4 | 5.8 | 3.0 |
| | | Lead, Total | 5.1 | 5.4 | 5.7 | 3.0 |
| | | Antimony, Total | 0.88 | 0.67u | ~~NC~~ * 200 | 3.0 |
| | | Selenium, Total | 1.3 u | 1.3 u | NC | 3.0 |
| | | Thallium, Total | 1.3 u | 1.3 u | NC | 3.0 |
| | | Vanadium, Total | 57.5 | 55.0 | 4.4 | 3.0 |

* Corrected RPD
AEM 10/13/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/13/08

CLIENT: WC-HANFORD RC-006 K1345 LVL LOT #: 0809L173

WORK ORDER: 60049-001-001-0001-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 08L0355-LC1 | Silver, LCS | 50.0 | 50.0 | MG/KG | 100 |
| | | Arsenic, LCS | 944 | 1000 | MG/KG | 94.4 |
| | | Boron, LCS | 474 | 500 | MG/KG | 94.8 |
| | | Barium, LCS | 495 | 500 | MG/KG | 99.0 |
| | | Beryllium, LCS | 24.6 | 25.0 | MG/KG | 98.4 |
| | | Calcium, LCS | 2510 | 2500 | MG/KG | 100.6 |
| | | Cadmium, LCS | 24.0 | 25.0 | MG/KG | 96.0 |
| | | Chromium, LCS | 49.6 | 50.0 | MG/KG | 99.2 |
| | | Copper, LCS | 124 | 125 | MG/KG | 99.1 |
| | | Lithium, LCS | 516 | 500 | MG/KG | 103.2 |
| | | Manganese, LCS | 74.8 | 75.0 | MG/KG | 99.7 |
| | | Sodium, LCS | 2390 | 2500 | MG/KG | 95.6 |
| | | Nickel, LCS | 197 | 200 | MG/KG | 98.4 |
| | | Lead, LCS | 242 | 250 | MG/KG | 96.9 |
| | | Antimony, LCS | 283 | 300 | MG/KG | 94.3 |
| | | Selenium, LCS | 923 | 1000 | MG/KG | 92.3 |
| | | Thallium, LCS | 980 | 1000 | MG/KG | 98.0 |
| | | Vanadium, LCS | 250 | 250 | MG/KG | 99.8 |
| LCS1 | 08C0174-LC1 | Mercury, LCS | 5.0 | 4.7 | MG/KG | 107.2 |

# SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0355
Date/Time Initiated: 9/29/08 1645
Date/Time Completed: 9/29/08 2030
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: lee dochloy

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 95

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
(3050B)
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other

TNV

| COC Batch # | Spike Vol(s) (mL) | Initial Wt/Vol (g/mL) | Final Vol (mL) | pH <2 | Type: To/So/TC | Texture | Color/Appearance | Artifact | Turb |
|---|---|---|---|---|---|---|---|---|---|
| 0809L106-001 | | 1.32gm | 100ml | <2 | TO | coarse | light brown soil | rocks | RAD |
| 001R | | 1.35gm | | | | | | | |
| 001S | 1.0ml * | 1.33gm | | | | | | | |
| 002 | | 1.45gm | | | | | | | |
| 003 | | 1.50gm | | | | | | | |
| 004 | | 1.44gm | | | | | | | RAD |
| 0809L177-001 | | 1.41gm | | | | fine | brown soil | | |
| 001R | | 1.38gm | | | | | | | |
| 001S | 1.0ml | 1.42gm | | | | | | | |
| 002 | | 1.32gm | | | | | tan soil | | |
| 003 | | 1.41gm | | | | | | | |
| 004 | | 1.35gm | | | | | brown soil | | |
| 005 | | 1.38gm | | | | coarse | amber/black-sandy | vegetation | |
| 006 | | 1.36gm | | | | fine | grayish brown soil | rocks | |
| 007 | | 1.38gm | | | | | brown soil | | |
| 008 | | 1.33gm | | | | | | | |
| 0809L123-001 (*) | | 1.42gm | | | | coarse | dark gray rocks | N/A | |
| 001R | | 1.33gm | | | | | | | |
| 001S | 1.0ml | 1.49gm | | | | | | | |
| 0809L173-001 | | 1.39gm | | | | fine | brown soil | N/A | |
| 001R | | 1.34gm | | | | | | | |
| 001S | 1.0ml | 1.40gm | | | | | | | |
| 08L0355-MB1 | | 1.0gm | | | | coarse | boiling chips | | |
| LC1 | 1.0ml * | 1.0gm | | | | | | | |

— end of batch MW 9/29/08 —

Spiking IDs:
MS #: 8100-04-01
02
03
6012-78-07
LCS #: 08
09
10
11

Reagent IDs:
$HNO_3$ G11022
HCL G26054
$H_2O_2$ G15A18
1:1 $HNO_3$ 9789-083-08
1:1 HCL

File ID#: ICO35501 ICO35502 ICO355 ICO356

LIMS Transfer: (Y) N updated

Data Review By/Date: 10/7/08

(*) rocks broken up into smaller pieces prior to digestion.

ionville Laboratory
ncorporated

# MERCURY PREPARATION

Logbook # 498

Analyst: CB
Date: 9/30/08
Start Time/Temp: 1615 | 91°
End Time/Temp: 1645 | 95°

Instrument ID: HG3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0174
Worksheet: HG000101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

**NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.**
**The Final volume for soil samples = 50mL, unless otherwise noted.**

| LvLI Batch # | Container Number | Spike Volume (mL) | Spike Conc. (µg/L) | Initial Wt. or Volume (g or mL) | Final Sample Volume (mL) | Comments, % Solids, etc. |
|---|---|---|---|---|---|---|
| Blank | JC | | | 10mL | 50mL | |
| 0.2 µg/L | C7 | 0.100 | | | | |
| 1.0 | C48 | 0.500 | | | | |
| 2.0 | DR | 1.000 | | | | |
| 5.0 | 3P | 2.500 | | | | |
| 10.0 | H5 | 5.000 | | | | |
| ICV | W0 | 0.125 | 2.5 | | | |
| CCV | 514 | 0.250 | 5.0 | | | |
| ICB/CCB | 183 | | | | | 9.50L |
| MB1 | 290 | | | 0.30 | | PBS174 100.00 |
| LC1 | PF | * | * | 0.30 | | LCSS174 |
| 0809L173-001 | 3X | | | 0.34 | | 100.00 |
| W1R | DX | | | 0.33 | | |
| W1S | L15 | 0.500 | 1.0 | 0.34 | | |
| 0809L139-001 | 537 | | | 0.30 | | 99.98 |
| W2 | U7 | | | 0.33 | | 99.67 |
| W2R | SE | | | 0.36 | | |
| W2S | CB2 | 0.500 | 1.0 | 0.33 | | |
| 003 | 303 | | | 0.30 | | 99.69 |
| 004 | B6 | | | 0.36 | | 99.47 |
| 005 | BB | | | 0.31 | | 99.97 |
| 006 | OLN | | | 0.38 | | 98.50 |
| 007 | B | | | 0.35 | | 99.39 |
| 008 | GR | | | 0.35 | | 99.53 |
| 009 | 31 | | | 0.30 | | 99.85 |
| 010 | JB | | | 0.34 | | 99.82 |
| 011 | 3C | | | 0.36 | | 99.67 |

| Standard: | ID | Prep Date/Time |
|---|---|---|
| LCS/MS | RI 6077-78-14B | 9/30/08 1230 0800 |
| ICV/CCV/LCS | US 6077-78-15A | TE 9/30/08 |

Reviewed By/Date: 10/6/08

see book # 9368 for std traceability information

LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
logue #1RM-021, Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

Jacksonville Laboratory Incorporated

# MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date: 9/30/08
Start Time/Temp:
End Time/Temp: see page 045

Instrument ID: HG1.1
Balance #: B29 ✓ /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C 0174
Worksheet: HG100101
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes NA No (If no: designate affected samples in Comments column, and initiate an SDR)

**NOTE: The Inital/Final Volume for water samples = 33mL, unless otherwise noted.**
**The Final volume for soil samples = 50mL, unless otherwise noted.**

| LvLI Batch # | Container Number | Spike Volume (mL) | Spike Conc. (µg/L) | Initial Wt. or Volume (g or mL) | Final Sample Volume (mL) | Comments, % Solids, etc. |
|---|---|---|---|---|---|---|
| 0809L139-012 | S | | | 0.35 | 50mL | 99.45 |
| 013 | 5T | | | 0.35 | ↓ | 99.56 |
| 0809L187-001 | PA | | | 0.33 | ↓ | R 94.09 |
| 001R | ET | | | 0.30 | ↓ | ↓ |
| 001S | AH | 0.500 | 1.0 | 0.30 | ↓ | ↓ |
| 002 | JI | | | 0.32 | ↓ | 98.87 |
| 003 | 5D8 | | | 0.36 | ↓ | 97.57 |
| 004 | 205 | | | 0.30 | ↓ | 98.40 |
| 005 | HH | | | 0.31 | ↓ | 97.86 |
| 0809L188-001 | NLO | | | 0.34 | ↓ | 100.00 |
| 001R | PD | | | 0.32 | ↓ | ↓ |
| 001S | 76 | 0.050 | 10.0 | 0.34 | ↓ | ↓ |

TEB 9/30/08

| Standard: | ID | Prep Date/Time |
|---|---|---|
| ALMS | | |
| LCV/CCV/LCS | See page | 045 |

Reviewed By/Date: [signature] 10/6/08

see book # 938 for std traceability information

LCS =US Metals in soil No.3; True Value = 4.70 mg/Kg
Lot # E021

Water Matrix Spiking Solution Concentration = 0.1 µg/ml
Water LCS Spiking Concentration: 1.0 µg/ml

HgCVAA-Prep1007

Page #:

000000015

Lionville Laboratory Use Only

0809L173

# Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000016

nt W.G Hanford SAF# RC-006

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

nville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT ~~21 Days~~ 7 days 0.2 wd 9-25-08

e Rec'd 9-25-08 Date Due 10-2-08

| Refrigerator # | | A | B | | | | C | | D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| #/Type Container | Liquid / Solid | 1G | 1G | | | | 1G | | 1P | | | | | | | |
| Volume | | 500g | 500g | | | | 500g | | 500g | | | | | | | |
| Preservatives | | – | – | | | | – | | – | | | | | | | |
| ANALYSES REQUESTED | | ORGANIC | | | | | | | INORG | | | | | | | |
| | | VOA | BNA | Pest/PCB | Herb | | TPH DRO | | Metal | CN | | | | | | |
| | | Lionville Laboratory Use Only | | | | | | | | | | | | | | |
| | | 06244 | 06254 | | | | DRO | | Met(1) | | | | | | | |

RIX
ES:
Soil
Sediment
Solid
Sludge
Water
Oil
Air
Drum Solids
Drum Liquids
EP/TCLP
Leachate
Wipe
Other
Fish

| Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J17J67 | / | / | OTHER SOLID | 9/22/08 | 0810 | X | X | | | | X | | X | | | | | |

ecial Instructions:

Met(1) = RCRA + Sb, Be, B, Ca, Cu, Li, Mn, Ni, Na, Tl, V

Special Instructions:

1. 9/25/08 client called to change TAT to 7 days. OJ
2.
3.
4.
5.
6.

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| DE | K. Kennedy | 9/25/08 | 0920 |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| ORIGINAL REWRITTEN | "COMPOSITE WASTE" | | |

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-006-178 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: Sherman | Company Contact: Tom Edmundson | Telephone No.: 947-5192 | Project Coordinator: KESSNER, JH |
| Price Code: 9K | Data Turnaround: ~~15~~ Days 21 TRE 9-17-08 | | |
| Project Designation: 100-N Ancillary Facilities & 190-DR Other Solid Sampling f | Sampling Location: 184-ND Oil Stained Soil | | SAF No.: RC-006 |
| Ice Chest No.: AFS-04-023 | Field Logbook No.: EL-1516-13 | COA: C11NX6M000 | Method of Shipment: Fed Ex |
| Shipped To: EBERLINE SERVICES, LIONVILLE | Offsite Property No.: ~~NA~~ TRE 9-22-08 A080364 | | Bill of Lading/Air Bill No.: ~~NA~~ TRE 9-22-08 SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | None | Cool 4C | | | | | | | |
| Type of Container | G | aG | G/P | G | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 50g | 50g | ~~1g~~ 50g 48 9/22/08 | 50g | | | | | | | |
| SAMPLE ANALYSIS | VOA - 8260A (TCL) | Semi-VOA - 8270A (TCL) | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D | | | SDG# K1345 | | | | |
| SDG# K1345 | | | | | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | |
| 17J67 | OTHER SOLID | 9/22/08 | 0810 | X | X | X | X | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From: Sherman | Date/Time: 9/22/08 0820 | Received By/Stored In: T.E. Edmundson | Date/Time: 9-22-08 0820 |
| Relinquished By/Removed From: T.E. Edmundson | Date/Time: 9-22-08 1330 | Received By/Stored In: 1060 Battelle #2C | Date/Time: 9-22-08 1330 |
| Relinquished By/Removed From: 1060 #2C/J.E. Bernhard | Date/Time: 1015 9-23-08 | Received By/Stored In: J.E. Bernhard | Date/Time: 1015 9-23-08 |
| Relinquished By/Removed From: J.E. Bernhard | Date/Time: 1030 9-23-08 | Received By/Stored In: FED EX | Date/Time: |
| Relinquished By/Removed From: FED EX | Date/Time: | Received By/Stored In: Alex Kelly | Date/Time: 9/24/08 9:30 |
| Relinquished By/Removed From: Alex Kelly | Date/Time: 9/24/08 16:00 | Received By/Stored In: FED EX | Date/Time: |

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Copper, Lead, Lithium, Manganese, Nickel, Selenium, Silver, Sodium, Thallium, Vanadium); Mercury - 7471 - (CV)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By: | Title | Date/Time: 9-25-08 0920 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

/CH-EE-011

000000017

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-006

Date: 9/25/08

LvLI Batch #: 0809L173

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | |
|---|---|---|---|
| 1. Samples Hand Delivered or Shipped? | Carrier FedEx | | Airbill # 7980 2051 7205 |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | *Comments:* |
| 4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible? | ☑ Yes | ☐ No | |
| 5. Samples received cooled or ambient? | Temp 2.3° | °C | Cooler # AFS-04-023 |
| How was the temperature taken? | ☑ IR | ☐ Temp. Blank | ☐ Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | ☑ Yes | ☐ No | |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 7. COC (Client & LvLI) signed & dated? | ☑ Yes | ☐ No | |
| 8. Sample containers are intact? | ☑ Yes | ☐ No | |
| 9. All samples on COC received? | ☑ Yes | ☐ No | |
| All samples received on COC? | ☑ Yes | ☐ No | |
| 10. All sample label information matches COC? | ☑ Yes | ☐ No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | ☑ Yes | ☐ No | |
| 12. Samples received within hold times? | ☑ Yes | ☐ No | |
| Short holds taken to wet lab? | ☐ Yes | ☐ No | ☑ N/A |
| 13. VOA, TOC, TOX free of headspace? | ☑ Yes | ☐ No | ☑ N/A WL 9-25-08 |
| 14. QC stickers placed on bottles designated by client? | ☑ Yes | ☐ No | ☑ N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | ☑ Yes | ☐ No | |
| 16. Project Manager contacted concerning any discrepancies? | ☐ Yes | ☐ No | ☑ N/A |
| Person Contacted _____ | | Date _____ | |

LvLI

OCT 2008

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J17J67 | 001 | SO | 08LE0476 | 09/22/08 | 09/29/08 | 10/02/08 |
| J17J67 | 001 MS | SO | 08LE0476 | 09/22/08 | 09/29/08 | 10/02/08 |
| J17J67 | 001 MSD | SO | 08LE0476 | 09/22/08 | 09/29/08 | 10/02/08 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| BLK | MB1 | S | 08LE0476 | N/A | 09/29/08 | 10/01/08 |
| BLK | MB1 BS | S | 08LE0476 | N/A | 09/29/08 | 10/01/08 |

LIONVILLE LABORATORY INC.

**Case Narrative**

**Client:** WC-HANFORD RC-006 K1345
**LVL #:** 0809L173

**W.O. #:** 60049-001-001-0001-00
**Date Received:** 09-25-2008

## DIESEL RANGE ORGANICS

One (1) solid sample was collected on 09-22-2008.

The sample and associated QC samples were extracted on 09-29-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 10-01,02-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8015B.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise. The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. All required holding times for extraction and analysis have been met.
2. The method blank was below the reporting limits for all target compounds.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. Samples J17J67, J17J67 MS and J17J67 MSD required a 10-fold dilution due to high concentrations of the target analyte.
6. All matrix spike recoveries were unobtainable due to dilutions required for analysis.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/9/08
Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.
r:\group\data\2008\dro\wc-hanford\0809-173ojsol1.doc

# GLOSSARY OF DATA

## DATA QUALIFIERS

| | | |
|---|---|---|
| U | = | Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U). |
| J | = | Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J. |
| B | = | This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. |
| E | = | Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution. |
| I | = | Interference. |
| . I | = | Indicates an interference on one analytical column only. Result is reported from remaining analytical column. |

## ABBREVIATIONS

| | | |
|---|---|---|
| BS | = | Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported. |
| BSD | = | Indicates blank spike duplicate. |
| MS | = | Indicates matrix spike. |
| MSD | = | Indicates matrix spike duplicate. |
| DL | = | Indicates that recoveries were not obtained because the extract had to be diluted for analysis. |
| NA | = | Not Applicable. |
| DF | = | Dilution Factor. |
| NR | = | Not Required. |
| NS | = | Not Spiked. |
| SP | = | Indicates Spiked Compound. |
| P | = | This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P". |
| D | = | This flag identifies all compounds identified in an analysis at a secondary dilution factor. |
| C | = | This flag applies to a compound that has been confirmed by GC/MS. |

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 10/07/08 12:53

RFW Batch Number: **0809L173** Client: **WC-HANFORD RC-006 K1345** Work Order: 60049001001 Page: 1

| | Cust ID: | J17J67 | J17J67 | J17J67 | BLK | BLK BS |
|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | 001 MS | 001 MSD | 08LE0476-MB1 | 08LE0476-MB1 |
| | Matrix: | SOLID | SOLID | SOLID | SOIL | SOIL |
| | D.F.: | 10.0 | 10.0 | 10.0 | 1.00 | 1.00 |
| | Units: | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| | p-Terphenyl | D % | D % | D % | 98 % | 57 % |
| Diesel Range Organics | | 1700000 | D % | D % | 3330 U | 76 % |
| Motor Oil Range Organics | | 2700000 | NS | NS | 10000 U | NS |

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000000004

Lionville Laboratory, Inc.

# SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 09/29/08 Extraction Batch No: 08LE0476 Analyst: MF Method: **** Sox 3540

Test: ODRO Cleanup Date: Analyst: Client: WC-HANFORD RC-006 K1345

LIMS Report Date: 10/01/08 Solvent: DCM,HEXANE Adsorbent:

| Sample No: | Client Name / Client ID | pH | Initial WT/VOL | Surr. Mult. | Spike Mult. | Final VOL | Final VOL | Split Mult. | GPC Y/N | % Solids | C/D FACTOR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0809L173- | WC-HANFORD RC-006 K1345 | | | | | | | | | | |
| 001 | J17J67 | | 30 | 1.0 | | 10.0 | | 1.0 | N | 0.0 | 333.3 |
| 001 -S | J17J67 | | 30 | 1.0 | 1.0 | 10.0 | | 1.0 | N | 0.0 | 333.3 |
| 001 -T | J17J67 | | 30 | 1.0 | 1.0 | 10.0 | | 1.0 | N | 0.0 | 333.3 |
| 0809L189- | WC-HANFORD RC-029 K1349 | | | | | | | | | | |
| 001 | J17HJ6 | | 30 | 1.0 | | 1.0 | | 1.0 | N | 99.08 | 33.64 |
| 001 -S | J17HJ6 | | 30 | 1.0 | 1.0 | 1.0 | | 1.0 | N | 99.08 | 33.64 |
| 001 -T | J17HJ6 | | 30 | 1.0 | 1.0 | 1.0 | | 1.0 | N | 99.08 | 33.64 |
| 08LE0476-MB1 | BLK | | 30 | 1.0 | | 1.0 | | 1.0 | N | 100.00 | 33.33 |
| 08LE0476-MB1 -S | BLK | | 30 | 1.0 | 1.0 | 1.0 | | 1.0 | N | 100.00 | 33.33 |

Comments:
Surrogate: 1.0 ML ODRO SURR 86971906
Spike: 1.0 ML DIESEL SPIKE 86971905

| Extracts Transferred | Relinquished By | Date Time | Received By | Date Time | Reason for Transfer |
|---|---|---|---|---|---|
| all | [illegible] | 10/1/08 1310 | SZ | 10/01/08 13:10 | GC |

000000005

ionville Laboratory Use Only

0809L173

# Custody Transfer Record/Lab Work Request

Page 1 of 1

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

LVLI

ient W.C Hanford SAF# RC-006

t. Final Proj. Sampling Date

oject# 60049-001-001-0001-00

oject Contact/Phone#

onville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT ~~24hr~~ 7 days

02 wd 9-25-08

ate Rec'd 9-25-08 Date Due 10-2-08

| | | A | B | | | | C | | D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | 3 | 3 | | | | 3 | | 3 | | | | | | | |
| #/Type Container | Liquid | | | | | | | | | | | | | | | |
| | Solid | 1G | 1G | | | | 1G | | 1P | | | | | | | |
| Volume | | 50g | 50g | | | | 50g | | 50g | | | | | | | |
| Preservatives | | — | — | | | | — | | — | | | | | | | |
| ANALYSES REQUESTED → | | ORGANIC | | | | | | | INORG | | | | | | | |
| | | VOA | BNA | Pest/PCB | Herb | | TPH DRO | | TAL Metal | CN | | | | | | |
| | | Lionville Laboratory Use Only | | | | | | | | | | | | | | |
| | | 062444 | 062544 | | | | DRO | | Met① | | | | | | | |

| ATRIX CODES: | Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil | 001 | J17J67 | ✓ | ✓ | OTHER SOLID | 9/22/08 | 0810 | X | X | | | | X | | X | | | | | |
| Sediment | | | | | | | | | | | | | | | | | | | | |
| Solid | | | | | | | | | | | | | | | | | | | | |
| Sludge | | | | | | | | | | | | | | | | | | | | |
| Water | | | | | | | | | | | | | | | | | | | | |
| Oil | | | | | | | | | | | | | | | | | | | | |
| Air | | | | | | | | | | | | | | | | | | | | |
| Drum Solids | | | | | | | | | | | | | | | | | | | | |
| Drum Liquids | | | | | | | | | | | | | | | | | | | | |
| EP/TCLP Leachate | | | | | | | | | | | | | | | | | | | | |
| Wipe | | | | | | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | | | | | |
| Fish | | | | | | | | | | | | | | | | | | | | |

pecial Instructions:

Met① = RCRA + Sb, Be, B, Ca, Cu, Li, Mn, Ni, Na, Tl, V

Special Instructions:

1. 9/25/08 client called to change TAT to 7 days. 02
2.
3.
4.
5.
6.

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| DEL | K. Kennedy | 9/25/08 | 0920 |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| ORIGINAL REWRITTEN | "COMPOSITE WASTE" | | |

000000006

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-006-178 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: Sherman | Company Contact: Tom Edmundson | Telephone No.: 947-5192 | Project Coordinator: KESSNER, JH |
| Price Code: 9K | Data Turnaround: ~~15~~ Days 21 TRE 9-17-08 | | |
| Project Designation: 100-N Ancillary Facilities & 190-DR Other Solid Sampling f | Sampling Location: 184-ND Oil Stained Soil | | SAF No.: RC-006 |
| Ice Chest No.: AFS-04-023 | Field Logbook No.: EL-1516-13 | COA: C11NX6M000 | Method of Shipment: Fed Ex |
| Shipped To: EBERLINE SERVICES, LIONVILLE | Offsite Property No.: ~~NA~~ TRE 9-22-08 A080364 | | Bill of Lading/Air Bill No.: ~~NA~~ TRE 9-22-08 SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | None | Cool 4C | | | | | | | |
| Type of Container | G | aG | G/P | G | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 50g | 50g | ~~15g~~ 50g 9/24/08 48 | 50g | | | | | | | |
| SAMPLE ANALYSIS | VOA - 8260A (TCL) | Semi-VOA - 8270A (TCL) | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D | | | | SDG# K1345 | | | |
| SDG# K1345 | | | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J17J67 | OTHER SOLID | 9/22/08 | 0810 | X | X | X | X | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names: Received By/Stored In | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From: Sherman | 9/22/08 0820 | T.E. Edmundson | 9-22-08 0820 |
| Relinquished By/Removed From: T.E. Edmundson | 9-22-08 1330 | 1060 Battelle #2C | 9-22-08 1330 |
| Relinquished By/Removed From: 1060 #2C / J.E. Bernhard | 9-23-08 1015 | Received By/Stored In: J.E. Bernhard | 9-23-08 1015 |
| Relinquished By/Removed From: J.E. Bernhard | 9-23-08 1030 | Received By/Stored In: FED EX | |
| Relinquished By/Removed From: FED EX | | Received By/Stored In: Alex Kelleny | 9/24/08 9:30 |
| Relinquished By/Removed From: Alex Kelleny | 9/24/08 16:00 | Received By/Stored In: FED EX | |

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Copper, Lead, Lithium, Manganese, Nickel, Selenium, Silver, Sodium, Thallium, Vanadium); Mercury - 7471 - (CV)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SJ=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | | |
|---|---|---|---|---|
| LABORATORY SECTION | Received By: | Title | Date/Time: 9-25-08 0920 | |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time | |

NCH-EE-011

0000000007

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAP/SOW/Release #: RC-006

Date: 9/25/08

LvLI Batch #: 0809L173

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | |
|---|---|---|---|
| 1. Samples Hand Delivered or Shipped? | Carrier FedEx | | Airbill # 7980 2051 7205 |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | *Comments:* |
| 4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible? | ☑ Yes | ☐ No | |
| 5. Samples received cooled or ambient? | Temp 2.3° | °C | Cooler # AFS-04-023 |
| How was the temperature taken? | ☑ IR | ☐ Temp. Blank | ☐ Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | ☑ Yes | ☐ No | |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 7. COC (Client & LvLI) signed & dated? | ☑ Yes | ☐ No | |
| 8. Sample containers are intact? | ☑ Yes | ☐ No | |
| 9. All samples on COC received? | ☑ Yes | ☐ No | |
| All samples received on COC? | ☑ Yes | ☐ No | |
| 10. All sample label information matches COC? | ☑ Yes | ☐ No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | ☑ Yes | ☐ No | |
| 12. Samples received within hold times? | ☑ Yes | ☐ No | |
| Short holds taken to wet lab? | ☐ Yes | ☐ No | ☑ N/A |
| 13. VOA, TOC, TOX free of headspace? | ☑ Yes | ☐ No | ☑ N/A VL 9-25-08 |
| 14. QC stickers placed on bottles designated by client? | ☑ Yes | ☐ No | ☑ N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | ☑ Yes | ☐ No | |
| 16. Project Manager contacted concerning any discrepancies? | ☐ Yes | ☐ No | ☑ N/A |
| Person Contacted _____ | | Date _____ | |

LvLI

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

RECEIVED OCT 2008

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J17J67 | 001 | SO | 08LVK182 | 09/22/08 | N/A | 09/26/08 |
| J17J67 | 001 MS | SO | 08LVK182 | 09/22/08 | N/A | 09/26/08 |
| J17J67 | 001 MSD | SO | 08LVK182 | 09/22/08 | N/A | 09/26/08 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| VBLKHQ | MB1 | S | 08LVK182 | N/A | N/A | 09/26/08 |
| VBLKHQ | MB1 BS | S | 08LVK182 | N/A | N/A | 09/26/08 |

LIONVILLE LABORATORY INC.

**Case Narrative**

**Client:** WC-HANFORD RC-006
**LVL #:** 0809L173
**SDG/SAF #** K1345/RC-006

**W.O. #:** 60049-001-001-0001-00
**Date Received:** 09-25-2008

**GC/MS VOLATILE**

One (1) solid sample was collected on 09-22-2008.

The sample and the associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL Volatile target compounds on 09-26-2008.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LvL) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was analyzed within required holding time.
2. Non-target compounds were detected in these samples.
3. All surrogate recoveries were within acceptance criteria.
4. Thirteen (13) of seventy (70) matrix spike recoveries were outside acceptance criteria due to possible matrix effect.
5. All blank spike recoveries were within acceptance criteria.
6. The method blank contained the common laboratory contaminant Methylene Chloride at levels less than 2x the reporting limit.
7. Internal standard areas were outside QC limits for the sample J17J67. The associated matrix spike analyses analyzed on 09-26-2008 fulfills the reanalysis requirement.
8. Manual integrations are performed according to SOP QA-125 to produce quality data with utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
9. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

r:\group\data\2008\voa\tnu\0809-173cs1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage.
All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

LIONVILLE LABORATORY INC.

**Case Narrative**

10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/9/08
Date

r:\group\data\2008\voa\tnu\0809-173cs1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage.
All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

# GLOSSARY

## DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

# GLOSSARY

## ABBREVIATIONS

| | | |
|---|---|---|
| BS | = | Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported. |
| BSD | = | Indicates blank spike duplicate. |
| MS | = | Indicates matrix spike. |
| MSD | = | Indicates matrix spike duplicate. |
| DL | = | Suffix added to sample number to indicate that results are from a diluted analysis. |
| NA | = | Not Applicable. |
| DF | = | Dilution Factor. |
| NR | = | Not Required. |
| SP, Z | = | Indicates Spiked Compound. |

# TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

MP - **Missed Peak:** Manually added peak not found by automatic quan program.

PA - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.

RI - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.

SP - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

PI - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

Volatiles by GC/MS, HSL List Report Date: 10/02/08 11:16

RFW Batch Number: **0809L173** Client: **WC-HANFORD RC-006 K1345** Work Order: 60049001001 Page: 1a

| | Cust ID: | J17J67 | J17J67 | J17J67 | VBLKHQ | VBLKHQ BS |
|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | 001 MS | 001 MSD | 08LVK182-MB1 | 08LVK182-MB1 |
| | Matrix: | SOLID | SOLID | SOLID | SOIL | SOIL |
| | D.F.: | 0.962 | 0.943 | 0.962 | 1.00 | 1.00 |
| | Units: | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| Surrogate Recovery | Toluene-d8 | 111 % | 109 % | 107 % | 102 % | 98 % |
| | Bromofluorobenzene | 118 % | 122 % | 118 % | 100 % | 94 % |
| | 1,2-Dichloroethane-d4 | 125 % | 126 % | 128 % | 110 % | 110 % |
| Chloromethane | | 10 U | 114 % | 119 % | 10 U | 94 % |
| Bromomethane | | 10 U | 92 % | 97 % | 10 U | 75 % |
| Vinyl Chloride | | 10 U | 111 % | 110 % | 10 U | 94 % |
| Chloroethane | | 10 U | 129 % | 127 % | 10 U | 114 % |
| Methylene Chloride | | 6 B | 83 % | 83 % | 5 J | 71 % |
| Acetone | | 10 U | 347 * % | 319 * % | 10 U | 117 % |
| Carbon Disulfide | | 5 U | 99 % | 96 % | 5 U | 96 % |
| 1,1-Dichloroethene | | 5 U | 109 % | 109 % | 5 U | 101 % |
| 1,1-Dichloroethane | | 5 U | 110 % | 109 % | 5 U | 99 % |
| 1,2-Dichloroethene (total) | | 5 U | 107 % | 108 % | 5 U | 98 % |
| Chloroform | | 5 U | 104 % | 104 % | 5 U | 98 % |
| 1,2-Dichloroethane | | 5 U | 128 % | 127 % | 5 U | 105 % |
| 2-Butanone | | 10 U | 236 * % | 222 * % | 10 U | 113 % |
| 1,1,1-Trichloroethane | | 5 U | 99 % | 97 % | 5 U | 98 % |
| Carbon Tetrachloride | | 5 U | 91 % | 90 % | 5 U | 95 % |
| Bromodichloromethane | | 5 U | 102 % | 97 % | 5 U | 98 % |
| 1,2-Dichloropropane | | 5 U | 104 % | 101 % | 5 U | 100 % |
| cis-1,3-Dichloropropene | | 5 U | 124 % | 121 % | 5 U | 98 % |
| Trichloroethene | | 5 U | 98 % | 94 % | 5 U | 102 % |
| Dibromochloromethane | | 5 U | 131 * % | 129 % | 5 U | 107 % |
| 1,1,2-Trichloroethane | | 5 U | 144 * % | 143 * % | 5 U | 107 % |
| Benzene | | 5 U | 100 % | 99 % | 5 U | 96 % |
| Trans-1,3-Dichloropropene | | 5 U | 126 % | 121 % | 5 U | 98 % |
| Bromoform | | 5 U | 128 % | 118 % | 5 U | 106 % |
| 4-Methyl-2-pentanone | | 10 U | 198 * % | 188 * % | 10 U | 114 % |
| 2-Hexanone | | 10 U | 226 * % | 215 * % | 10 U | 116 % |
| Tetrachloroethene | | 5 U | 90 % | 87 % | 5 U | 96 % |
| 1,1,2,2-Tetrachloroethane | | 5 U | 185 * % | 171 * % | 5 U | 105 % |
| Toluene | | 5 U | 106 % | 104 % | 5 U | 93 % |

*= Outside of EPA CLP QC limits.

000000007

| Cust ID: | J17J67 | | J17J67 | | J17J67 | | VBLKHQ | | VBLKHQ BS | |
|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 001 | | 001 MS | | 001 MSD | | 08LVK182-MB1 | | 08LVK182-MB1 | |
| Chlorobenzene | 5 | U | 99 | % | 93 | % | 5 | U | 99 | % |
| Ethylbenzene | 5 | U | 91 | % | 86 | % | 5 | U | 96 | % |
| Styrene | 5 | U | 92 | % | 84 | % | 5 | U | 96 | % |
| Xylenes (total) | 5 | U | 88 | % | 81 | % | 5 | U | 93 | % |
| cis-1,2-dichloroethene | 5 | U | 107 | % | 110 | % | 5 | U | 99 | % |
| trans-1,2-dichloroethene | 5 | U | 107 | % | 105 | % | 5 | U | 98 | % |

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17J67

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOLID Lab Sample ID: 0809L173-001

Sample wt/vol: 5.20 (g/mL) G Lab File ID: k092606

Level: (low/med) LOW Date Received: 09/25/08

% Moisture: not dec. 0 Date Analyzed: 09/26/08

Column: (pack/cap) CAP Dilution Factor: 0.962

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SILOXANE | 16.951 | 20 | JB |
| 2. | UNKNOWN | 21.667 | 40 | J |
| 3. | C4-ALKYLBENZENE | 21.980 | 7 | J |
| 4. | UNKNOWN | 22.085 | 20 | JB |
| 5. | UNKNOWN | 22.224 | 10 | J |
| 6. | C4-ALKYLBENZENE | 22.624 | 40 | J |
| 7. | ALKANE | 23.007 | 40 | J |
| 8. | UNKNOWN | 23.198 | 80 | J |
| 9. | UNKNOWN | 23.721 | 50 | J |
| 10. | UNKNOWN | 23.877 | 50 | J |
| 11. | UNKNOWN | 24.521 | 40 | JB |
| 12. | AROMATIC | 25.130 | 30 | J |
| 13. | UNKNOWN | 25.530 | 30 | J |
| 14. | UNKNOWN | 25.809 | 9 | J |
| 15. | UNKNOWN | 26.801 | 10 | J |

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKHQ

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 08LVK182-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k092605

Level: (low/med) LOW Date Received: 09/26/08

% Moisture: not dec. 0 Date Analyzed: 09/26/08

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SILOXANE | 16.938 | 20 | J |
| 2. | UNKNOWN | 22.124 | 5 | J |
| 3. | UNKNOWN | 24.595 | 3 | J |

FORM 1 VOA-TIC 1/87 Rev.

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

0809L173

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: W.C. Hanford SAF# RC-006

Est. Final Proj. Sampling Date:

Project#: 60049-001-001-0001-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STD TAT: ~~21 Day~~ 7 days 02 wd 9-25-08

Date Rec'd: 9-25-08 Date Due: 10-~~16~~-08

| | A | B | | | | C | | D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | 3 | 3 | | | | 3 | | 3 | | | | | | | |
| #/Type Container (Liquid / Solid) | 1G | 1G | | | | 1G | | 1P | | | | | | | |
| Volume | 500g | 500g | | | | 500g | | 500g | | | | | | | |
| Preservatives | — | — | | | | — | | — | | | | | | | |
| ANALYSES REQUESTED | ORGANIC: VOA | BNA | Pest/PCB | Herb | | DRO | | INORG: Metal | CN | | | | | | |
| Lionville Laboratory Use Only | 062 4H | 062 5H | | | | DRO | | MetO | | | | | | | |

MATRIX CODES: B- Soil; SE- Sediment; SO- Solid; SL- Sludge; W- Water; O- Oil; A- Air; DS- Drum Solids; DL- Drum Liquids; L- EP/TCLP Leachate; WI- Wipe; X- Other; F- Fish

| Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J17J67 | ✓ | ✓ | OTHER SOLID | 9/22/08 | 0810 | X | X | | | | X | | X | | | | |

Special Instructions:

MetO(1) = RCRA + Sb, Be, B, Ca, Cu, Li, Mn, Ni, Na, Tl, V

Special Instructions: 9/25/08

1. client called to change TAT to 7 days. 02
2.
3.
4.
5.
6.

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| Ed E. | K. Kennedy | 9/25/08 | 0920 |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| ORIGINAL REWRITTEN | | "COMPOSITE WASTE" | |

000000011

Washington Closure Hanford

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-006-178 | Page 1 of 1

| | | | |
|---|---|---|---|
| Collector: Sherman | Company Contact: Tom Edmundson | Telephone No.: 947-5192 | Project Coordinator: KESSNER, JH |
| Price Code: 9K | Data Turnaround: ~~15~~ Days 21 TRE 9-22-08 | | |
| Project Designation: 100-N Ancillary Facilities & 190-DR Other Solid Sampling f | Sampling Location: 184-ND Oil Stained Soil | | SAF No.: RC-006 |
| Ice Chest No.: AFS-04-023 | Field Logbook No.: EL-1516-13 | COA: C11NX6M000 | Method of Shipment: Fed Ex |
| Shipped To: EBERLINE SERVICES, LIONVILLE | Offsite Property No.: ~~NA~~ TRE 9-22-08 A080364 | | Bill of Lading/Air Bill No.: ~~NA~~ TRE 9-22-08 SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | None | Cool 4C | | | | | | | |
| Type of Container | G | aG | G/P | G | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 50g | 50g | ~~15g~~ 50g 9/24/08 | 50g | | | | | | | |
| SAMPLE ANALYSIS | VOA - 8260A (TCL) | Semi-VOA - 8270A (TCL) | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D | | | SDG# K1345 | | | | |

SDG# K1345

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J17J67 | OTHER SOLID | 9/22/08 | 0810 | X | X | X | X | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|---|
| Relinquished By/Removed From | Gary J. Sherman | 9/22/08 0820 | T.R. Edmundson | 9-22-08 0820 |
| Relinquished By/Removed From | T.R. Edmundson | 9-22-08 1330 | 1060 Battelle #2C | 9-22-08 1330 |
| Relinquished By/Removed From | 1060 #2C/J.E. Bernhard | 9-23-08 1015 | J.E. Bernhard | 9-23-08 1015 |
| Relinquished By/Removed From | J.E. Bernhard | 9-23-08 1030 | FED EX | |
| Relinquished By/Removed From | FED EX | | Alex Kelenky | 9/24/08 9:30 |
| Relinquished By/Removed From | Alex Kelenky | 9/24/08 16:00 | FED EX | |

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) {Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Copper, Lead, Lithium, Manganese, Nickel, Selenium, Silver, Sodium, Thallium, Vanadium}; Mercury - 7471 - (CV)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | | |
|---|---|---|---|---|
| LABORATORY SECTION | Received By: [signature] | Title | 9-25-08 0920 | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | | Date/Time |

WCH-EE-011

00000002

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAP/SOW/Release #: RC-006

Date: 9/25/08

LvLI Batch #: 0809L173

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | |
|---|---|---|---|
| 1. Samples Hand Delivered or Shipped? | Carrier FedEx | | Airbill # 7980 2051 7205 |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | *Comments:* |
| 4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible? | ☑ Yes | ☐ No | |
| 5. Samples received cooled or ambient? | Temp 2.3° | °C | Cooler # AFS-04-023 |
| How was the temperature taken? | ☑ IR | ☐ Temp. Blank | ☐ Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | ☑ Yes | ☐ No | |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 7. COC (Client & LvLI) signed & dated? | ☑ Yes | ☐ No | |
| 8. Sample containers are intact? | ☑ Yes | ☐ No | |
| 9. All samples on COC received? | ☑ Yes | ☐ No | |
| All samples received on COC? | ☑ Yes | ☐ No | |
| 10. All sample label information matches COC? | ☑ Yes | ☐ No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | ☑ Yes | ☐ No | |
| 12. Samples received within hold times? | ☑ Yes | ☐ No | |
| Short holds taken to wet lab? | ☐ Yes | ☐ No | ☑ N/A |
| 13. VOA, TOC, TOX free of headspace? | ☑ Yes | ☐ No | ☑ N/A VL 9-25-08 |
| 14. QC stickers placed on bottles designated by client? | ☑ Yes | ☐ No | ☑ N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | ☑ Yes | ☐ No | |
| 16. Project Manager contacted concerning any discrepancies? | ☐ Yes | ☐ No | ☑ N/A |

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-006 K1345

RECEIVED OCT 2008

DATE RECEIVED: 09/25/08 LVL LOT # :0809L173

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J17J67 | 001 | SO | 08LE0475 | 09/22/08 | 09/29/08 | 10/05/08 |
| J17J67 | 001 MS | SO | 08LE0475 | 09/22/08 | 09/29/08 | 10/05/08 |
| J17J67 | 001 MSD | SO | 08LE0475 | 09/22/08 | 09/29/08 | 10/05/08 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SBLKYH | MB1 | S | 08LE0475 | N/A | 09/29/08 | 10/01/08 |
| SBLKYH | MB1 BS | S | 08LE0475 | N/A | 09/29/08 | 10/01/08 |

LIONVILLE LABORATORY INC.

**Case Narrative**

**Client:** WC-HANFORD RC-006 K1345
**LVL #:** 0809L173

**W.O. #:** 60049-001-001-0001-00
**Date Received:** 09-25-2008

**SEMIVOLATILE**

One (1) solid sample was collected on 09-22-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 09-29-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 10-01, 05-2008.

All solid samples are reported on a wet weight basis. The sample had an elevated final volume of 10.0 ml; reporting limits have been adjusted to reflect this change.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. All results presented in this report are derived from samples that met LvL's sample acceptance policy.

2. Samples were extracted and analyzed within holding time.

3. Non-target compounds were detected in these samples.

4. All obtainable surrogate recoveries were within acceptance criteria.

5. Seventeen (17 of one hundred twenty-eight (128) obtainable matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) # 08MS227 has been enclosed. Several matrix spike recoveries were unobtainable due to dilution required for analysis.

6. Four (4) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of SDR# 08MS227 is enclosed.

7. The method blank was below the reporting limit for all target compounds.

8. All initial calibrations associated with this data set were within acceptance criteria.

9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of target compound hexachlorobutadiene analyzed on 10-01-2008 on instrument 5972N. Refer to SDR 08MS227 enclosed.

10. Internal standard area and retention time criteria were met.

11. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.
r:\group\data\2008\bna\wc-hanford\0809-154ojsol1.doc

12. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

13. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/10/08
Date

LVLI
LIONVILLE LABORATORY INC.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0fm5227

Initiator: Shum Saylor
Date: 10-8-08
Client: WCLtanford RC06 K1345

Batch: 0f09L173
Samples: BS, ms, msd
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 0f16047S

**1. Reason for SDR**

**a. COC Discrepancy** __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

**b. General Discrepancy**

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

**c. Problem** (Include all relevant specific results; attach data if necessary)

(1) low recovery of isophorone, 1,2,4-trichlorobenzene & 2,4-dinitrophenol in BS

(2) low recovery of several spike analytes in the ms, msd

(3) % D for hexachlorobutadiene exceeded 20% continuing calibration criteria performed on 10/1/08 instrument N

**2. Known or Probable Causes(s)** (1) Acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. Others sporadic, all other spikes ok. Surrogates within acceptance criteria. (2) possible matrix effect, samples required a 5 fold dilution in addition to an elevated final volume of 10 ml's. (3) data reflected an increase in instrument response consequently the ability to identify this compound was not impaired. Compd not detected in the associated sample ∴ minimal impact on the data

**3. Discussion and Proposed Action** Other Description:

narrate

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

**4. Project Manager Instructions**...signature/date: 10/9/08

✓ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

**5. Final Action**...signature/date: _____ Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

**When Final Action has been recorded, forward original to QA for diposition.**

Route
__ Lab Manager: Daniels
(1) Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

Route
__ Metals: Welsh / _____
__ Inorganic: Perrone / _____
__ GC/LC: Carey / _____
__ MS VOA: Rubino / _____
(2) MS BNA: Garden _____
__ Other: _____

QA-139-A-0208

# GLOSSARY

## DATA QUALIFIERS

| | | |
|---|---|---|
| U | = | Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture. |
| J | = | Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J. |
| B | = | This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound. |
| E | = | Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution. |
| D | = | Identifies all compounds identified in an analysis at a secondary dilution factor. |
| I | = | Interference. |
| NQ | = | Result qualitatively confirmed but not able to quantify. |
| A | = | Indicates that a TIC is a suspected aldol-condensation product. |
| N | = | Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used. |
| X | = | This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard). |
| Y | = | Additional qualifiers used as required are explained in the case narrative. |

# GLOSSARY

## ABBREVIATIONS

| | | |
|---|---|---|
| BS | = | Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported. |
| BSD | = | Indicates blank spike duplicate. |
| MS | = | Indicates matrix spike. |
| MSD | = | Indicates matrix spike duplicate. |
| DL | = | Suffix added to sample number to indicate that results are from a diluted analysis. |
| NA | = | Not Applicable. |
| DF | = | Dilution Factor. |
| NR | = | Not Required. |
| SP, Z | = | Indicates Spiked Compound. |

## TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

| | Cust ID: | J17J67 | J17J67 | J17J67 | SBLKYH | SBLKYH BS |
|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | 001 MS | 001 MSD | 08LE0475-MB1 | 08LE0475-MB1 |
| | Matrix: | SOLID | SOLID | SOLID | SOIL | SOIL |
| | D.F.: | 50.0 | 50.0 | 50.0 | 1.00 | 1.00 |
| | Units: | ug/Kg | ug/Kg | ug/Kg | ug/Kg | ug/Kg |
| Surrogate Recovery | Nitrobenzene-d5 | 63 % | 62 % | 74 % | 72 % | 60 % |
| | 2-Fluorobiphenyl | 82 % | 74 % | 69 % | 64 % | 84 % |
| | Terphenyl-d14 | 100 % | 80 % | 77 % | 93 % | 106 % |
| | Phenol-d5 | 57 % | 56 % | 48 % | 66 % | 87 % |
| | 2-Fluorophenol | 69 % | 46 % | 48 % | 62 % | 77 % |
| | 2,4,6-Tribromophenol | 50 % | 41 % | 58 % | 55 % | 117 % |
| Phenol | | 17000 U | 52 % | 53 % | 330 U | 79 % |
| bis(2-Chloroethyl)ether | | 17000 U | 80 % | 69 % | 330 U | 88 % |
| 2-Chlorophenol | | 17000 U | D % | 44 * % | 330 U | 98 % |
| 1,3-Dichlorobenzene | | 17000 U | 58 % | 60 % | 330 U | 75 % |
| 1,4-Dichlorobenzene | | 17000 U | 56 % | 65 % | 330 U | 74 % |
| 1,2-Dichlorobenzene | | 17000 U | 46 * % | 68 % | 330 U | 79 % |
| 2-Methylphenol | | 17000 U | 53 * % | 56 * % | 330 U | 76 % |
| 2,2'-oxybis(1-Chloropropane) | | 17000 U | 89 % | 73 % | 330 U | 83 % |
| 3/4 Methylphenol | | 17000 U | D % | D % | 330 U | 85 % |
| N-Nitroso-di-n-propylamine | | 17000 U | 64 % | 93 % | 330 U | 94 % |
| Hexachloroethane | | 17000 U | 82 % | 71 % | 330 U | 82 % |
| Nitrobenzene | | 17000 U | 65 % | 85 % | 330 U | 55 % |
| Isophorone | | 17000 U | 78 % | 62 % | 330 U | 55 * % |
| 2-Nitrophenol | | 17000 U | D % | D % | 330 U | 51 % |
| 2,4-Dimethylphenol | | 17000 U | 60 % | 68 % | 330 U | 63 % |
| bis(2-Chloroethoxy)methane | | 17000 U | 82 % | 82 % | 330 U | 63 % |
| 2,4-Dichlorophenol | | 17000 U | 51 % | 46 * % | 330 U | 58 % |
| 1,2,4-Trichlorobenzene | | 17000 U | 61 % | 56 * % | 330 U | 54 * % |
| Naphthalene | | 17000 U | 86 % | 68 % | 330 U | 54 % |
| 4-Chloroaniline | | 17000 U | 45 % | D % | 330 U | 58 % |
| Hexachlorobutadiene | | 17000 U | 79 % | 71 % | 330 U | 65 % |
| 4-Chloro-3-methylphenol | | 17000 U | 58 * % | 82 % | 330 U | 66 % |
| 2-Methylnaphthalene | | 17000 U | 233 * % | 100 % | 330 U | 60 % |
| Hexachlorocyclopentadiene | | 17000 U | D % | D % | 330 U | 73 % |
| 2,4,6-Trichlorophenol | | 17000 U | 45 % | 48 % | 330 U | 97 % |
| 2,4,5-Trichlorophenol | | 42000 U | 70 % | 55 % | 830 U | 93 % |

*= Outside of EPA CLP QC limits.

000000008

| Cust ID: | J17J67 | | J17J67 | | J17J67 | | SBLKYH | | SBLKYH BS | |
|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 001 | | 001 MS | | 001 MSD | | 08LE0475-MB1 | | 08LE0475-MB1 | |
| 2-Chloronaphthalene | 17000 | U | 75 | % | 72 | % | 330 | U | 83 | % |
| 2-Nitroaniline | 42000 | U | 60 | % | D | % | 830 | U | 98 | % |
| Dimethylphthalate | 17000 | U | 86 | % | 93 | % | 330 | U | 118 | % |
| Acenaphthylene | 17000 | U | 74 | % | 73 | % | 330 | U | 91 | % |
| 2,6-Dinitrotoluene | 17000 | U | 71 | % | 59 * | % | 330 | U | 106 | % |
| 3-Nitroaniline | 42000 | U | 133 | % | D | % | 830 | U | 103 | % |
| Acenaphthene | 17000 | U | 124 | % | 93 | % | 330 | U | 87 | % |
| 2,4-Dinitrophenol | 42000 | U | D | % | D | % | 830 | U | 13 * | % |
| 4-Nitrophenol | 42000 | U | 55 | % | 95 | % | 830 | U | 98 | % |
| Dibenzofuran | 17000 | U | 92 | % | 84 | % | 330 | U | 94 | % |
| 2,4-Dinitrotoluene | 17000 | U | 102 | % | 68 | % | 330 | U | 99 | % |
| Diethylphthalate | 17000 | U | 96 | % | 102 | % | 330 | U | 130 | % |
| 4-Chlorophenyl-phenylether | 17000 | U | 79 | % | 90 | % | 330 | U | 125 * | % |
| Fluorene | 17000 | U | 119 | % | 77 | % | 330 | U | 106 | % |
| 4-Nitroaniline | 42000 | U | D | % | D | % | 830 | U | 82 | % |
| 4,6-Dinitro-2-methylphenol | 42000 | U | D | % | D | % | 830 | U | 67 | % |
| N-Nitrosodiphenylamine (1) | 17000 | U | 111 | % | 156 * | % | 330 | U | 88 | % |
| 4-Bromophenyl-phenylether | 17000 | U | 106 | % | 89 | % | 330 | U | 104 | % |
| Hexachlorobenzene | 17000 | U | 69 | % | 75 | % | 330 | U | 104 | % |
| Pentachlorophenol | 42000 | U | D | % | D | % | 830 | U | 93 | % |
| Phenanthrene | 1000 | J | 304 * | % | 109 | % | 330 | U | 104 | % |
| Anthracene | 17000 | U | 118 | % | 100 | % | 330 | U | 104 | % |
| Carbazole | 17000 | U | 93 | % | 119 | % | 330 | U | 92 | % |
| Di-n-butylphthalate | 17000 | U | 109 | % | 126 | % | 330 | U | 143 | % |
| Fluoranthene | 17000 | U | 298 * | % | 122 | % | 330 | U | 115 | % |
| Pyrene | 1900 | J | 304 * | % | 90 | % | 330 | U | 96 | % |
| Butylbenzylphthalate | 17000 | U | 107 | % | 131 | % | 330 | U | 132 | % |
| 3,3'-Dichlorobenzidine | 17000 | U | 55 | % | 98 | % | 330 | U | 110 | % |
| Benzo(a)anthracene | 17000 | U | 210 * | % | 124 | % | 330 | U | 96 | % |
| Chrysene | 890 | J | 195 * | % | 105 | % | 330 | U | 96 | % |
| bis(2-Ethylhexyl)phthalate | 17000 | U | 95 | % | 126 | % | 330 | U | 137 | % |
| Di-n-octyl phthalate | 17000 | U | 91 | % | 89 | % | 330 | U | 133 | % |
| Benzo(b)fluoranthene | 17000 | U | 112 | % | 105 | % | 330 | U | 94 | % |
| Benzo(k)fluoranthene | 17000 | U | 134 * | % | 100 | % | 330 | U | 100 | % |
| Benzo(a)pyrene | 17000 | U | 159 * | % | 130 | % | 330 | U | 95 | % |
| Indeno(1,2,3-cd)pyrene | 17000 | U | 121 | % | 111 | % | 330 | U | 92 | % |
| Dibenz(a,h)anthracene | 17000 | U | 121 | % | 93 | % | 330 | U | 93 | % |
| Benzo(g,h,i)perylene | 1100 | J | 125 | % | 100 | % | 330 | U | 95 | % |

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17J67

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-006 K1345

Matrix: (soil/water) SOLID

Lab Sample ID: 0809L173-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100413

Level: (low/med) LOW

Date Received: 09/25/08

% Moisture: 100 decanted: (Y/N)__

Date Extracted: 09/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/05/08

Injection Volume: 2.0(uL)

Dilution Factor: 50.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | ALKANE | 16.998 | 8000 | J |
| 2. | ALKANE | 17.068 | 6000 | J |
| 3. | ALKANE | 18.192 | 6000 | J |
| 4. | ALKANE | 19.012 | 6000 | J |
| 5. | UNKNOWN | 24.321 | 6000 | J |

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKYH

Lab Name: Lionville Labs, Inc. Work Order: 60049001001

Client: WC-HANFORD RC-006 K1345

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0475-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100110

Level: (low/med) LOW

Date Received: 09/29/08

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 09/29/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/01/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN | 24.669 | 70 | J |

FORM 1 SV-TIC RFW (v3.3)

Lionville Laboratory Use Only

08096173

# Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000012

nt W.C. Hanford SAF# RC-006

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

ville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT ~~21 Days~~ 7 days 02 WED 9-25-08

e Rec'd 9-25-08 Date Due 10-16-08

| | | A | B | | | | C | | D | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Refrigerator # | | 3 | 3 | | | | 3 | | 3 | | | | | | | |
| #/Type Container | Liquid | | | | | | | | | | | | | | | |
| | Solid | 1G | 1G | | | | 1G | | 1P | | | | | | | |
| Volume | | 500g | 500g | | | | 500g | | 500g | | | | | | | |
| Preservatives | | – | – | | | | – | | – | | | | | | | |
| ANALYSES REQUESTED → | ORGANIC | VOA | BNA | Pest/PCB | Herb | | TPH DRO | | INORG Metal | CN | | | | | | |
| | Lionville Laboratory Use Only | 062454 | 062554 | | | | DRO | | MetO | | | | | | | |

| RIX ES: | Lab ID | Client ID/Description | Matrix QC Chosen (✓) MS | MSD | Matrix | Date Collected | Time Collected | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish | 001 | J17J67 | ✓ | ✓ | Other Solid | 9/22/08 | 0810 | X | X | | | | X | | X | | | | | |

cial Instructions:

MetO = RCRA + Sb, Be, B, Ca, Cu, Li, Mn, Ni, Na, Tl, V

Special Instructions: 9/25/08

1. client called to change TAT to 7 days. 03
2.
3.
4.
5.
6.

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| DG | K. Kennedy | 9/25/08 | 0920 |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| | | | |
| | | | |

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| ORIGINAL REWRITTEN | | "COMPOSITE WASTE" | |

Washington Closure Hanford

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-006-178



| | | | |
|---|---|---|---|
| Collector: Sherman | Company Contact: Tom Edmundson | Telephone No.: 947-5192 | Project Coordinator: KESSNER, JH |
| Price Code: 9K | Data Turnaround: ~~15~~ Days 21 TRE 9-17-08 | | |
| Project Designation: 100-N Ancillary Facilities & 190-DR Other Solid Sampling f | Sampling Location: 184-ND Oil Stained Soil | | SAF No.: RC-006 |
| Ice Chest No.: AFS-04-023 | Field Logbook No.: EL-1516-13 | COA: C11NX6M000 | Method of Shipment: Fed Ex |
| Shipped To: EBERLINE SERVICES, LIONVILLE | Offsite Property No.: ~~NATRE 9-22-08~~ A080364 | | Bill of Lading/Air Bill No.: ~~NATRE 9-22-08~~ SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | None | Cool 4C | | | | | | | |
| Type of Container | G | aG | G/P | G | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 50g | 50g | ~~15g~~ 48 9/24/08 ~~50g~~ | 50g | | | | | | | |
| SAMPLE ANALYSIS | VOA - 8260A (TCL) | Semi-VOA - 8270A (TCL) | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D | | | SDG# K1345 | | | | |

SDG# K1345

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7J67 | OTHER SOLID | 9/22/08 | 0810 | X | X | X | X | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| [illegible] | 9/22/08 0820 | T.R. Edmundson | 9-22-08 0820 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| T.R. Edmundson | 9-22-08 1330 | 1060 Battelle #2C | 9-22-08 1330 |
| Relinquished By/Removed From | Date/Time 1015 | Received By/Stored In | Date/Time 1015 |
| 1060 #2C / J.E. Bernhard | 9-23-08 | J.E. Bernhard | 9-23-08 |
| Relinquished By/Removed From | Date/Time 1030 | Received By/Stored In | Date/Time |
| J.E. Bernhard | 9-23-08 | FED EX | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| FED EX | | Alex Kelly | 9/24/08 9:30 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Alex Kelly | 9/24/08 16:00 | FED EX | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Copper, Lead, Lithium, Manganese, Nickel, Selenium, Silver, Sodium, Thallium, Vanadium); Mercury - 7471 - (CV)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By: [illegible] | Title: 9-25-08 | Date/Time: 0920 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

CH-EE-011

3100000

Lionville Laboratory Incorporated

# SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAP/SOW/Release #: RC-006

Date: 9/25/08

LvLI Batch #: 0809L173

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

| | | | |
|---|---|---|---|
| 1. Samples Hand Delivered or Shipped? | Carrier FedEx | | Airbill # 7980 2051 7205 |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | *Comments:* |
| 4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible? | ☑ Yes | ☐ No | |
| 5. Samples received cooled or ambient? | Temp 2.3° | °C | Cooler # AFS-04-023 |
| How was the temperature taken? | ☑ IR | ☐ Temp. Blank | ☐ Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | ☑ Yes | ☐ No | |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ No Seals |
| 7. COC (Client & LvLI) signed & dated? | ☑ Yes | ☐ No | |
| 8. Sample containers are intact? | ☑ Yes | ☐ No | |
| 9. All samples on COC received? | ☑ Yes | ☐ No | |
| All samples received on COC? | ☑ Yes | ☐ No | |
| 10. All sample label information matches COC? | ☑ Yes | ☐ No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | ☑ Yes | ☐ No | |
| 12. Samples received within hold times? | ☑ Yes | ☐ No | |
| Short holds taken to wet lab? | ☐ Yes | ☐ No | ☑ N/A |
| 13. VOA, TOC, TOX free of headspace? | ☑ Yes | ☐ No | ☑ N/A WL 9-25-08 |
| 14. QC stickers placed on bottles designated by client? | ☑ Yes | ☐ No | ☑ N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | ☑ Yes | ☐ No | |
| 16. Project Manager contacted concerning any discrepancies? | ☐ Yes | ☐ No | ☑ N/A |

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORIES, INC.