0059879

# SAF-B03-017
# Remaining Sites Confirmation Sampling-Other Solid
# FINAL DATA PACKAGE

**E:MAIL RESULTS TO:**

Ella Feist ___N/A___
INITIAL/DATE

Mike Stankovich ___N/A___
INITIAL/DATE

**MAIL COMPLETE COPY OF DATA PACKAGE TO:**

| | | |
|---|---|---|
| Ella Feist | H9-01 | 6.11.03 INITIAL/DATE |
| Mike Stankovich | H9-02 | 6.11.03 INITIAL/DATE |
| Bob Hynes | H0-18 | 6.11.03 INITIAL/DATE |
| Jeanette Duncan | H9-02 | 6.11.03 INITIAL/DATE |

**COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE COVER SHEET)**

SDG (H2235) SAF-B03-017

Rad only X Chem only Rad & Chem

X Complete Partial

**Sample Location/Waste Site: 600-190**

RECEIVED
JUL 28 2003
EDMC

LIONVILLE LABORATORY INC.

4 June 2003

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

**Subject: Contract No. 630**
**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 # | 0305L473 |
| SDG # | H2235 |
| SAF # | B03-017 |
| Date Received | 5-22-03 |
| # Samples | 7 |
| Matrix | Other Solid |
| Volatiles | |
| Semivolatiles | X |
| Pest/PCB | X |
| DRO/KRO/GRO | |
| GC Alcohols | |
| Herbicides | X |
| Metals | X |
| Inorganics | X |

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

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

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JUN 2003

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P23 | 001 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P24 | 002 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P25 | 003 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/30/03 |
| J00P26 | 004 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/30/03 |
| J00P55 | 005 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P56 | 006 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P56 | 006 MS | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P56 | 006 MSD | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |
| J00P57 | 007 | SO | 03LE0623 | 05/19/03 | 05/23/03 | 05/28/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SBLKUA | MB1 | S | 03LE0623 | N/A | 05/23/03 | 05/27/03 |
| SBLKUA | MB1 BS | S | 03LE0623 | N/A | 05/23/03 | 05/27/03 |

LIONVILLE LABORATORY INC.

**Client:** TNU-HANFORD B03-017
**LVL #:** 0305L473
**SDG/SAF #** H2235/B03-017

**W.O. #:** 11343-606-001-9999-00
**Date Received:** 05-22-2003

**SEMIVOLATILE**

Seven (7) solid samples were collected on 05-19-2003.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on SW 846 method 3550 on 05-23-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 05-27,28,30-2003.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

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

2. The samples were extracted and analyzed within required holding time.

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

4. All samples required a 5 to 200-fold dilution due to the nature of the sample matrix.

5. All surrogate recoveries were within EPA QC limits.

6. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

7. All blank spike recoveries were within EPA QC limits.

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

9. Manual integrations are performed according to OP 21-06A-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").

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.

J. Michael Taylor
President
Lionville Laboratory Incorporated

06-04-03
Date

som\gorup\data\bna\tnu-hanford-0305-473.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 2 3 pages.



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# 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.

**Lionville Laboratory, Inc.**

Semivolatiles by GC/MS, HSL List

RFW Batch Number: **0305L473** Client: **TNUHANFORD B03-017 H2235** Work Order: 11343606001 Report Date: 06/04/03 10:13 Page: 1a

| | Cust ID: | J00P23 | | J00P24 | | J00P25 | | J00P26 | | J00P55 | | J00P56 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | | 002 | | 003 | | 004 | | 005 | | 006 | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | |
| | D.F.: | 20.0 | | 10.0 | | 400 | | 25.0 | | 40.0 | | 10.0 | |
| | Units: | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | |
| Surrogate Recovery | Nitrobenzene-d5 | 71 | % | 95 | % | 0 D | % | 65 | % | 86 | % | 85 | % |
| | 2-Fluorobiphenyl | 60 | % | 93 | % | 0 D | % | 72 | % | 67 | % | 84 | % |
| | Terphenyl-d14 | 58 | % | 92 | % | 0 D | % | 78 | % | 58 | % | 87 | % |
| | Phenol-d5 | 61 | % | 89 | % | 0 D | % | 78 | % | 62 | % | 85 | % |
| | 2-Fluorophenol | 61 | % | 80 | % | 0 D | % | 32 | % | 32 | % | 85 | % |
| | 2,4,6-Tribromophenol | 78 | % | 120 | % | 0 D | % | 52 | % | 74 | % | 96 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Phenol | | 20000 | U | 5000 | U | 130000 | U | 6200 | J | 4100 | J | 6700 | U |
| bis(2-Chloroethyl)ether | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2-Chlorophenol | | 20000 | U | 5000 | U | 130000 | U | 1200 | J | 27000 | U | 6700 | U |
| 1,3-Dichlorobenzene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 1,4-Dichlorobenzene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 1,2-Dichlorobenzene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2-Methylphenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,2'-oxybis(1-Chloropropane) | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 3- and/or 4-Methylphenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| N-Nitroso-di-n-propylamine | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Hexachloroethane | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Nitrobenzene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Isophorone | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2-Nitrophenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,4-Dimethylphenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| bis(2-Chloroethoxy)methane | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,4-Dichlorophenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 1,2,4-Trichlorobenzene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Naphthalene | | 1400 | J | 5000 | U | 19000 | J | 17000 | U | 25000 | J | 6700 | U |
| 4-Chloroaniline | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Hexachlorobutadiene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 4-Chloro-3-methylphenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2-Methylnaphthalene | | 20000 | U | 5000 | U | 10000 | J | 17000 | U | 3700 | J | 6700 | U |
| Hexachlorocyclopentadiene | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,4,6-Trichlorophenol | | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,4,5-Trichlorophenol | | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0305L473 Client: TNUHANFORD B03-017 H2235 Work Order: 11343606001 

| Cust ID: | J00P23 | | J00P24 | | J00P25 | | J00P26 | | J00P55 | | J00P56 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 001 | | 002 | | 003 | | 004 | | 005 | | 006 | |
| 2-Chloronaphthalene | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2-Nitroaniline | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| Dimethylphthalate | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Acenaphthylene | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 2,6-Dinitrotoluene | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 3-Nitroaniline | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| Acenaphthene | 20000 | U | 5000 | U | 47000 | J | 17000 | U | 27000 | U | 6700 | U |
| 2,4-Dinitrophenol | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| 4-Nitrophenol | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| Dibenzofuran | 20000 | U | 5000 | U | 47000 | J | 69000 | | 27000 | U | 6700 | U |
| 2,4-Dinitrotoluene | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Diethylphthalate | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 4-Chlorophenyl-phenylether | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Fluorene | 20000 | U | 5000 | U | 67000 | J | 17000 | U | 27000 | U | 6700 | U |
| 4-Nitroaniline | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| 4,6-Dinitro-2-methylphenol | 50000 | U | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| N-Nitrosodiphenylamine (1) | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 4-Bromophenyl-phenylether | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Hexachlorobenzene | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Pentachlorophenol | 14000 | J | 13000 | U | 330000 | U | 42000 | U | 67000 | U | 17000 | U |
| Phenanthrene | 20000 | U | 5000 | U | 660000 | | 17000 | U | 27000 | U | 6700 | U |
| Anthracene | 20000 | U | 5000 | U | 55000 | J | 17000 | U | 27000 | U | 6700 | U |
| Carbazole | 20000 | U | 5000 | U | 110000 | J | 17000 | U | 27000 | U | 6700 | U |
| Di-n-butylphthalate | 12000 | J | 5000 | U | 130000 | U | 17000 | U | 120000 | | 6700 | U |
| Fluoranthene | 20000 | U | 5000 | U | 610000 | | 17000 | U | 27000 | U | 6700 | U |
| Pyrene | 20000 | U | 5000 | U | 500000 | | 17000 | U | 27000 | U | 6700 | U |
| Butylbenzylphthalate | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| 3,3'-Dichlorobenzidine | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Benzo(a)anthracene | 20000 | U | 5000 | U | 260000 | | 17000 | U | 27000 | U | 6700 | U |
| Chrysene | 20000 | U | 5000 | U | 380000 | | 17000 | U | 27000 | U | 6700 | U |
| bis(2-Ethylhexyl)phthalate | 63000 | | 5000 | U | 24000 | J | 17000 | U | 13000 | J | 6700 | U |
| Di-n-octyl phthalate | 20000 | U | 5000 | U | 130000 | U | 17000 | U | 27000 | U | 6700 | U |
| Benzo(b)fluoranthene | 20000 | U | 5000 | U | 160000 | | 17000 | U | 27000 | U | 6700 | U |
| Benzo(k)fluoranthene | 20000 | U | 5000 | U | 160000 | | 17000 | U | 27000 | U | 6700 | U |
| Benzo(a)pyrene | 20000 | U | 5000 | U | 90000 | J | 17000 | U | 27000 | U | 6700 | U |
| Indeno(1,2,3-cd)pyrene | 20000 | U | 5000 | U | 54000 | J | 17000 | U | 27000 | U | 6700 | U |
| Dibenz(a,h)anthracene | 20000 | U | 5000 | U | 34000 | J | 17000 | U | 27000 | U | 6700 | U |
| Benzo(g,h,i)perylene | 20000 | U | 5000 | U | 54000 | J | 17000 | U | 27000 | U | 6700 | U |

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

**Lionville Laboratory, Inc.**

Semivolatiles by GC/MS, HSL List

RFW Batch Number: **0305L473** Client: **TNUHANFORD B03-017 H2235** Work Order: 11343606001 Report Date: 06/04/03 10:13 Page: 2a

| | Cust ID: | J00P56 | | J00P56 | | J00P57 | | SBLKUA | | SBLKUA BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 006 MS | | 006 MSD | | 007 | | 03LE0623-MB1 | | 03LE0623-MB1 | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOIL | | SOIL | |
| | D.F.: | 10.0 | | 10.0 | | 1.00 | | 1.00 | | 1.00 | |
| | Units: | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | | ug/Kg | |
| Surrogate Recovery | Nitrobenzene-d5 | 82 | % | 88 | % | 76 | % | 65 | % | 75 | % |
| | 2-Fluorobiphenyl | 80 | % | 81 | % | 100 | % | 60 | % | 69 | % |
| | Terphenyl-d14 | 65 | % | 71 | % | 95 | % | 80 | % | 88 | % |
| | Phenol-d5 | 79 | % | 82 | % | 73 | % | 59 | % | 66 | % |
| | 2-Fluorophenol | 80 | % | 83 | % | 71 | % | 59 | % | 67 | % |
| | 2,4,6-Tribromophenol | 103 | % | 99 | % | 110 | % | 66 | % | 76 | % |
| Phenol | | 77 | % | 76 | % | 670 | U | 330 | U | 61 | % |
| bis(2-Chloroethyl)ether | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2-Chlorophenol | | 77 | % | 80 | % | 670 | U | 330 | U | 62 | % |
| 1,3-Dichlorobenzene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 1,4-Dichlorobenzene | | 67 | % | 72 | % | 670 | U | 330 | U | 67 | % |
| 1,2-Dichlorobenzene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2-Methylphenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,2'-oxybis(1-Chloropropane) | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 3- and/or 4-Methylphenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| N-Nitroso-di-n-propylamine | | 115 | % | 115 | % | 670 | U | 330 | U | 70 | % |
| Hexachloroethane | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Nitrobenzene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Isophorone | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2-Nitrophenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,4-Dimethylphenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| bis(2-Chloroethoxy)methane | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,4-Dichlorophenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 1,2,4-Trichlorobenzene | | 65 | % | 68 | % | 670 | U | 330 | U | 68 | % |
| Naphthalene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 4-Chloroaniline | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Hexachlorobutadiene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 4-Chloro-3-methylphenol | | 58 | % | 75 | % | 670 | U | 330 | U | 70 | % |
| 2-Methylnaphthalene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Hexachlorocyclopentadiene | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,4,6-Trichlorophenol | | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,4,5-Trichlorophenol | | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |

*= Outside of EPA CLP QC limits.

| Cust ID: | J00P56 | | J00P56 | | J00P57 | | SBLKUA | | SBLKUA BS | |
|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 006 MS | | 006 MSD | | 007 | | 03LE0623-MB1 | | 03LE0623-MB1 | |
| 2-Chloronaphthalene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2-Nitroaniline | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |
| Dimethylphthalate | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Acenaphthylene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,6-Dinitrotoluene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 3-Nitroaniline | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |
| Acenaphthene | 67 | % | 77 | % | 670 | U | 330 | U | 69 | % |
| 2,4-Dinitrophenol | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |
| 4-Nitrophenol | 58 | % | 60 | % | 1700 | U | 840 | U | 75 | % |
| Dibenzofuran | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 2,4-Dinitrotoluene | 52 | % | 54 | % | 670 | U | 330 | U | 79 | % |
| Diethylphthalate | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 4-Chlorophenyl-phenylether | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Fluorene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 4-Nitroaniline | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |
| 4,6-Dinitro-2-methylphenol | 17000 | U | 17000 | U | 1700 | U | 840 | U | 840 | U |
| N-Nitrosodiphenylamine (1) | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 4-Bromophenyl-phenylether | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Hexachlorobenzene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Pentachlorophenol | 135 * | % | 130 * | % | 1700 | U | 840 | U | 65 | % |
| Phenanthrene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Anthracene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Carbazole | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Di-n-butylphthalate | 6700 | U | 6700 | U | 670 | U | 330 | U | 18 | J |
| Fluoranthene | 6700 | U | 6700 | U | 120 | J | 330 | U | 330 | U |
| Pyrene | 68 | % | 70 | % | 120 | J | 330 | U | 78 | % |
| Butylbenzylphthalate | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| 3,3'-Dichlorobenzidine | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Benzo(a)anthracene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Chrysene | 6700 | U | 6700 | U | 110 | J | 330 | U | 330 | U |
| bis(2-Ethylhexyl)phthalate | 6700 | U | 6700 | U | 120 | J | 330 | U | 330 | U |
| Di-n-octyl phthalate | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Benzo(b)fluoranthene | 6700 | U | 6700 | U | 51 | J | 330 | U | 330 | U |
| Benzo(k)fluoranthene | 6700 | U | 6700 | U | 52 | J | 330 | U | 330 | U |
| Benzo(a)pyrene | 6700 | U | 6700 | U | 38 | J | 330 | U | 330 | U |
| Indeno(1,2,3-cd)pyrene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Dibenz(a,h)anthracene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |
| Benzo(g,h,i)perylene | 6700 | U | 6700 | U | 670 | U | 330 | U | 330 | U |

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P23

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-001

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: A052804

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/28/03

Injection Volume: 2.0(uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | ALDOL CONDENSATE | 2.938 | 60000 | JAB |
| 2. 108-94-1 | CYCLOHEXANONE | 3.850 | 30000 | JN |
| 3. 85-44-9 | PHTHALIC ANHYDRIDE | 10.553 | 30000 | JN |
| 4. | ORGANIC ACID | 17.833 | 100000 | J |
| 5. | ORGANIC ACID | 19.297 | 100000 | J |

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P24

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-002

Sample wt/vol: 20.0 (g/mL) G

Lab File ID: A052805

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/28/03

Injection Volume: 2.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | ALDOL CONDENSATE | 2.964 | 40000 | JAB |
| 2. | ORGANIC ACID | 17.868 | 40000 | J |
| 3. | ORGANIC ACID | 19.305 | 8000 | J |
| 4. | ORGANIC ACID | 19.461 | 20000 | J |
| 5. | UNKNOWN | 22.625 | 4000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P25

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-003

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

Lab File ID: D053010

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/30/03

Injection Volume: 2.0(uL)

Dilution Factor: 400

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN | 11.135 | 100000 | J |
| 2. | PAH | 21.516 | 90000 | J |
| 3. | PAH | 22.272 | 80000 | J |
| 4. | PAH | 22.559 | 90000 | J |
| 5. | PAH | 25.585 | 100000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P26

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-004

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: D053011

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/30/03

Injection Volume: 2.0(uL)

Dilution Factor: 25.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. 108-10-1 | METHGYL ISOBUTYL KETONE | 2.564 | 100000 | JN |
| 2. 108-94-1 | CYCLOHEXANONE | 5.555 | 400000 | JN |
| 3. 13130-19-3 | 1,2,3,4-TETRAHYDRODIBENZOFUR | 15.423 | 100000 | JN |
| 4. | UNKNOWN | 17.275 | 300000 | J |
| 5. | UNKNOWN | 24.396 | 200000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P55

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-005

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: A052809

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/28/03

Injection Volume: 2.0(uL)

Dilution Factor: 40.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | C2-ALKYLBENZENE | 3.430 | 70000 | J |
| 2. 108-94-1 | CYCLOHEXANONE | 3.894 | 300000 | JN |
| 3. | C3-ALKYLBENZENE | 5.566 | 100000 | J |
| 4. | C3-ALKYLBENZENE | 6.058 | 80000 | J |
| 5. | C4-ALKYLBENZENE | 6.617 | 80000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P56

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-006

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: A052810

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 05/28/03

Injection Volume: 2.0 (uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | ALDOL CONDENSATE | 2.977 | 50000 | JAB |
| 2. 85-44-9 | PHTHALIC ANHYDRIDE | 10.596 | 40000 | JN |
| 3. 13679-41-9 | 3-PHENYLFURAN | 13.193 | 2000 | JN |
| 4. | ORGANIC ACID | 17.817 | 1000 | J |
| 5. | UNKNOWN | 22.129 | 4000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00P57

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOLID

Lab Sample ID: 0305L473-007

Sample wt/vol: 15.0 (g/mL) G

Lab File ID: A052813

Level: (low/med) LOW

Date Received: 05/22/03

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/28/03

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN | 3.126 | 40000 | J |
| 2. | ORGANIC ACID | 4.534 | 6000 | J |
| 3. 85-44-9 | PHTHALIC ANHYDRIDE | 10.672 | 6000 | JN |
| 4. | ORGANIC ACID | 18.101 | 10000 | J |
| 5. | ORGANIC ACID | 19.594 | 9000 | J |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKUA

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B03-017 H2235

Matrix: (soil/water) SOIL

Lab Sample ID: 03LE0623-MB1

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

Lab File ID: D052706

Level: (low/med) LOW

Date Received: 05/23/03

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

Date Extracted: 05/23/03

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/27/03

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | ALDOL CONDENSATE | 4.591 | 200 | JA |
| 2. | ALDOL CONDENSATE | 5.156 | 10000 | JA |
| 3. | ALDOL CONDENSATE | 6.416 | 80 | JA |

| Lionville Laboratory Use Only |
|---|
| 0305L473 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLT LIONVILLE LABORATORY INC

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hanford B03-017
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: Colette Johnson
QC: SPEC  Del: STD  TAT: 7 days
Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | | |
| #/Type Container | Liquid | | | | | | |
| | Solid | 1aq | 1aq | -1 | 1aq | 1aq | 1aq |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | — | — | — | — | — | — |
| ANALYSES REQUESTED | | ORGANIC: VOA | BNA | Pest/PCB | Herb | INORG: Metal | CN | Sulfide |

Lionville Laboratory Use Only

MATRIX CODES:
S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNPO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-19-03 | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

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

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-113 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C | Data Turnaround<br>7 Days |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Air Quality ☐ | |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE OSPC | | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area, No Activity Report Rquired*

**Special Handling and/or Storage**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P23 | OTHER SOLID | 5-19-03 | 1150 | X | X | X | | | | | | | |
| J00P24 | OTHER SOLID | 5-19-03 | 1200c | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R Fahlberg 5-19-03 | 1600 | 3BC 3728 5-19-03 | 1600 |
| 3C 3728 | 52103 1300 | SJ GALE | 52103 1300 |
| SJ GALE | 52103 1300 | FED EX | |
| Fed Ex | 5-22-03 0900 | D. Smith | 5-22-03 0900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality — |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R Fahlberg | 5-19-03 1215 | ~~3R~~ 3-C 3728 | 5-19-03 1600 |
| 3C 3728 | 52103 1300 | S JOALE | 52103 1300 |
| S JOALE | 52103 1300 | FED EX | |
| Fed Ex | 5-22-03 10900 | [illegible] | 5-22-03/10900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-115 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality — |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. AO 30236 | | Bill of Lading/Air Bill No. 505 037 C | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) RC 5-19-03 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P26 | OTHER SOLID | 5·19·03 | 1220 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|---|---|---|---|
| Relinquished By/Removed From<br>R Fahlberg R Fahlberg | Date/Time 1600<br>5·19·03 | Received By/Stored In<br>3C 3728 | Date/Time 1600<br>5·19·03 |
| Relinquished By/Removed From<br>3C 3728 52103 | Date/Time<br>1300 | Received By/Stored In<br>SJ GALE | Date/Time<br>52103 1300 |
| Relinquished By/Removed From<br>SJ GALE | Date/Time<br>52103 1300 | Received By/Stored In<br>FED EX | Date/Time |
| Relinquished By/Removed From<br>Fed Ex | Date/Time<br>5·22·03 1000 | Received By/Stored In<br>D Smith | Date/Time<br>5·22·03 1000 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHLEE 011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-120 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Price Code 9C | Data Turnaround<br>7 Days | Air Quality — | |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 |
| Ice Chest No.<br>ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No.<br>A030 23C | | Bill of Lading/Air Bill No.<br>SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area. No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | |
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R. Fahlberg R. Fahlberg | 1600 5·19·03 | 3C 3728 | 1600 5·19·03 |
| 3C 3728 | 52103 1300 | EJGALE | 52103 1300 |
| EJGALE | 52103 1300 | FED EX | |
| FED EX | 5·22·03/0900 | | 5·22·03/0900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

ENT: TNU Hanford

hase Order/Project:

DATE: 5-22-03

#) SOW# / Release #: B03-017

oratory SDG #: Q3C5L473

TE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

oler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

aboratory Sample Custodian: D. Johnson

aboratory Project Manager:

23

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P23 | 001 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P24 | 002 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P25 | 003 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P25 | 003 01 | SO | | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P25 | 003 MS | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P25 | 003 MSD | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P26 | 004 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P55 | 005 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P56 | 006 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |
| J00P57 | 007 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/29/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| PBLKUR | MB1 | S | 03LE0626 | N/A | 05/26/03 | 05/28/03 |
| PBLKUR | MB1 BS | S | 03LE0626 | N/A | 05/26/03 | 05/28/03 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD B03-017
**LVL #:** 0305L473
**SDG/SAF #:** H2235/B03-017

**W.O. #:** 11343-606-001-9999-00
**Date Received:** 05-22-03

**PESTICIDE**

The set of samples consisted of seven (7) solid samples collected on 05-19-03.

The samples and their associated QC samples were extracted on 05-26-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-28,29-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

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

2. All required holding times for extraction and analysis have been met.

3. All samples and their associated QC samples received a Sulfur cleanup.

4. The method blank was below the reporting limits for all target compounds.

5. All obtainable surrogate recoveries were within acceptance criteria.

6. One (1) of six (6) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

7. Matrix spike recoveries were unobtainable due to the dilution required for analysis.

8. All samples required 50-fold instrument dilutions due to the high concentrations of target and non-target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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 19 pages.

10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of target compounds analyzed on 05-29-03 at 04:53 and 05:42 on the RTX-CLP column and the target compounds analyzed on 05-28-03 at 17:24 and 18:13 on both columns. All results were reported from the RTX-35 column for those analyzed on 05-29-03. No target compounds were found in those samples analyzed on 05-28-03. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

11. 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

6/4/03
Date

pef\r:\group\data\pest\tmu hanford\05L-473.pes

LVLI
LIONVILLE LABORATORY INC.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 036C158

Initiator: Bryce Santoro
Date: TNV
Client: 05/29/03

Batch: 03052472, 473
Samples: all
Method: SW846/MCAWW/CLP/

Parameter: 0608H
Matrix: Soil
Prep Batch: 03LE0626

**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) ccv prior to all 472 samples and QC and 473-002, 004. was elevated on both columns. All samples are clean.

(2) ccv prior to remaining 473 samples elevated on RTX-CLP2 column only. All results reported from RTX-35 column.

**2. Known or Probable Causes(s)**

(3) High Endrin recovery in BS. All samples clean of Endrin.

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

__ 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: 5/29/03

✓ 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: 6/4/03 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 Specialist for distribution and filing.**

| Route | Distribution of Completed SDR | Route | Distribution of Completed SDR |
|---|---|---|---|
| __ | X Initiator | __ | __ Metals: Beegle |
| __ | X Lab General Manager: M. Taylor | __ | __ Inorganic: Perrone |
| ✓ | X Project Mgr: Stone/Johnson/Haslett | __ | __ GC/LC: Kiger |
| __ | X Technical Mgr: ~~Wesson/Daniels~~ | __ | __ MS: Rychlak/Layman |
| __ | X QA (file) | __ | __ Log-in: Melnic |
| __ | __ Data Management: Feldman | __ | __ Admin: Soos |
| __ | __ Sample Prep: Beegle/Kiger | __ | __ Other: _____ |

QA-105-A-0801

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lionville Laboratory Incorporated

Contract:

Client:

GC Sample ID: 052703gc15 .29

RFW Lot ID:

Millennium Result ID: 3168

Instrument ID: GC15

Initial Calibration Start Date: 5/27/03

Date of Analysis: 5/28/03 2

Processing Method: 05270315A_SPA_CCVB

Time of Analysis: 5:24:00 PM

Standard ID: INDA 4102 B

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | INITIAL RESPONSE | RT | CONT. RESPONSE | %D | FL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | MEAN %D | 20.7 | FL + |
| TCX | 8.64 | 8.56 | 8.71 | 3270 | 8.63 | 3808 | 16.5 | + |
| ALPHA-BHC | 11.17 | 11.10 | 11.24 | 1634 | 11.16 | 1932 | 18.2 | + |
| GAMMA-BHC | 12.64 | 12.57 | 12.71 | 1633 | 12.64 | 1912 | 17.1 | + |
| HEPTACHLOR | 14.12 | 14.04 | 14.19 | 1668 | 14.11 | 1937 | 16.1 | + |
| ENDOSULFAN I | 18.71 | 18.64 | 18.78 | 1380 | 18.71 | 1586 | 14.9 | |
| DIELDRIN | 19.79 | 19.72 | 19.86 | 2619 | 19.79 | 2975 | 13.6 | |
| ENDRIN | 21.01 | 20.94 | 21.08 | 1956 | 21.01 | 2345 | 19.9 | + |
| 4,4'-DDD | 21.50 | 21.42 | 21.57 | 1146 | 21.49 | 1472 | 28.4 | ! |
| 4,4'-DDT | 22.60 | 22.52 | 22.67 | 1451 | 22.59 | 1855 | 27.8 | ! |
| METHOXYCHLOR | 25.42 | 25.35 | 25.49 | 3729 | 25.42 | 5000 | 34.1 | ! |

RTX-35

# CALIBRATION VERIFICATION SUMMARY

ıb Name: Lionville Laboratory Incorporated

Contract:

ıient:

GC Sample ID: 052703gc15 .29

:W Lot ID:

Millennium Result ID: 3170

ıstrument ID: GC15

rocessing Method: 05270315B_SPA_CCVB

Initial Calibration Start Date: 5/27/03

Date of Analysis: 5/28/03 2

Time of Analysis: 5:24:00 PM

Standard ID: INDA 4102 B

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | INITIAL RESPONSE | RT | CONT. RESPONSE | %D | FL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | MEAN %D | 41.8 | ! |
| TCX | 7.84 | 7.77 | 7.91 | 8147 | 7.84 | 10631 | 30.5 ✓ | ! |
| ALPHA-BHC | 10.13 | 10.06 | 10.20 | 5150 | 10.13 | 7129 | 38.4 | ! |
| GAMMA-BHC | 11.45 | 11.38 | 11.52 | 5098 | 11.45 | 7041 | 38.1 | ! |
| HEPTACHLOR | 13.02 | 12.95 | 13.09 | 5211 | 13.02 | 6921 | 32.8 | ! |
| ENDOSULFAN I | 17.52 | 17.45 | 17.59 | 4441 | 17.52 | 5966 | 34.3 | ! |
| DIELDRIN | 18.47 | 18.39 | 18.54 | 8478 | 18.46 | 11645 | 37.4 | ! |
| ENDRIN | 19.48 | 19.41 | 19.55 | 6551 | 19.48 | 9245 | 41.1 | ! |
| 4,4'-DDD | 20.01 | 19.94 | 20.08 | 2894 | 20.01 | 4441 | 53.5 | ! |
| 4,4'-DDT | 21.05 | 20.98 | 21.12 | 3996 | 21.05 | 6051 | 51.4 | ! |
| METHOXYCHLOR | 23.44 | 23.37 | 23.51 | 7431 | 23.43 | 11926 | 60.5 | ! |

RTX-2LP2

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lionville Laboratory Incorporated
Contract:
Client:
GC Sample ID: 052703gc15 .30
RFW Lot ID:
Millennium Result ID: 3171

Instrument ID: GC15
Initial Calibration Start Date: 5/28/03
Date of Analysis: 5/28/03 2
Processing Method: 05270315B_SPB_CCVB
Time of Analysis: 6:13:14 PM
Standard ID: INDB 4202 B

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | INITIAL RESPONSE | RT | CONT. RESPONSE | %D | FL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | MEAN %D | 27.9 | ! |
| BETA-BHC | 11.82 | 11.75 | 11.89 | 2718 | 11.84 | 3408 | 25.4 | ! |
| DELTA-BHC | 12.87 | 12.80 | 12.94 | 4175 | 12.89 | 5377 | 28.8 | ! |
| ALDRIN | 14.17 | 14.10 | 14.24 | 5775 | 14.19 | 7034 | 21.8 | + |
| HEPT. EPOXIDE | 16.21 | 16.14 | 16.28 | 5558 | 16.23 | 6719 | 20.9 | + |
| G CHLORDANE | 16.87 | 16.80 | 16.94 | 5619 | 16.89 | 6894 | 22.7 | + |
| A CHLORDANE | 17.38 | 17.31 | 17.45 | 5705 | 17.40 | 6945 | 21.7 | + |
| 4,4'-DDE | 18.06 | 17.99 | 18.13 | 5039 | 18.08 | 7118 | 41.3 | ! |
| ENDOSULFAN II | 20.23 | 20.16 | 20.30 | 7706 | 20.25 | 9796 | 27.1 | ! |
| ENDRIN ALDEHYDE | 21.39 | 21.32 | 21.46 | 6153 | 21.41 | 7964 | 29.4 | ! |
| ENDO SULFATE | 22.32 | 22.25 | 22.39 | 6525 | 22.34 | 8488 | 30.1 | ! |
| ENDRIN KETONE | 24.07 | 24.00 | 24.14 | 7118 | 24.09 | 9470 | 33.0 | ! |
| DCB | 28.82 | 28.75 | 28.89 | 14074 | 28.83 | 18733 | 33.1 | ! |

KTX-CLP2

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lionville Laboratory Incorporated

Contract:

Client:

GC Sample ID: 052703gc15 .43

RFW Lot ID:

Millennium Result ID: 3161

Instrument ID: GC15

Initial Calibration Start Date: 5/27/03

Date of Analysis: 5/29/03 2

Processing Method: 05270315B_SPA

Time of Analysis: 4:53:46 AM

Standard ID: INDA 4104 D

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | INITIAL RESPONSE | RT | CONT. RESPONSE | %D | FL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | MEAN %D | 31.4 | FL ! |
| TCX | 7.88 | 7.81 | 7.95 | 32406 | 7.87 | 40670 | 25.5 ✓ | ! |
| ALPHA-BHC | 10.17 | 10.10 | 10.24 | 24446 | 10.16 | 32093 | 31.3 | ! |
| GAMMA-BHC | 11.49 | 11.42 | 11.56 | 23461 | 11.48 | 30583 | 30.4 | ! |
| HEPTACHLOR | 13.07 | 12.99 | 13.14 | 21961 | 13.05 | 28221 | 28.5 | ! |
| ENDOSULFAN I | 17.56 | 17.49 | 17.63 | 18927 | 17.55 | 24250 | 28.1 | ! |
| DIELDRIN | 18.51 | 18.44 | 18.58 | 38349 | 18.49 | 48736 | 27.1 | ! |
| ENDRIN | 19.52 | 19.45 | 19.59 | 28678 | 19.51 | 38173 | 33.1 | ! |
| 4,4'-DDD | 20.05 | 19.98 | 20.12 | 14228 | 20.04 | 19641 | 38.0 | ! |
| 4,4'-DDT | 21.09 | 21.02 | 21.16 | 19822 | 21.08 | 26844 | 35.4 | ! |
| METHOXYCHLOR | 23.48 | 23.41 | 23.55 | 34242 | 23.47 | 46652 | 36.2 | ! |

RTX-CLP2

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lionville Laboratory Incorporated
Contract:
Client:
GC Sample ID: 052703gc15 .44
RFW Lot ID:
Millennium Result ID: 3163

Instrument ID: GC15
Processing Method: 05270315B_SPB
Initial Calibration Start Date: 5/28/03
Date of Analysis: 5/29/03 2
Time of Analysis: 5:42:57 AM
Standard ID: INDB 4204 D

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | INITIAL RESPONSE | RT | CONT. RESPONSE | %D | FL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | MEAN %D | 24.4 | FL + |
| BETA-BHC | 11.81 | 11.74 | 11.88 | 10828 | 11.83 | 13352 | 23.3 | + |
| DELTA-BHC | 12.87 | 12.80 | 12.94 | 18894 | 12.88 | 24045 | 27.3 | ! |
| ALDRIN | 14.17 | 14.10 | 14.24 | 24341 | 14.18 | 29417 | 20.9 | + |
| HEPT. EPOXIDE | 16.21 | 16.14 | 16.28 | 22248 | 16.22 | 26902 | 20.9 | + |
| G CHLORDANE | 16.86 | 16.79 | 16.93 | 22743 | 16.88 | 27813 | 22.3 | + |
| A CHLORDANE | 17.37 | 17.30 | 17.44 | 22810 | 17.39 | 27979 | 22.7 | + |
| 4,4'-DDE | 18.06 | 17.98 | 18.13 | 23428 | 18.07 | 30876 | 31.8 | ! |
| ENDOSULFAN II | 20.23 | 20.16 | 20.30 | 32362 | 20.24 | 39805 | 23.0 | + |
| ENDRIN ALDEHYDE | 21.39 | 21.32 | 21.46 | 25164 | 21.40 | 31141 | 23.8 | + |
| ENDO SULFATE | 22.31 | 22.24 | 22.38 | 27739 | 22.33 | 34819 | 25.5 | ! |
| ENDRIN KETONE | 24.06 | 23.99 | 24.13 | 31080 | 24.08 | 39159 | 26.0 | ! |
| DCB | 28.81 | 28.74 | 28.88 | 53770 | 28.82 | 67148 | 24.9 | + |

BS 5/29/03

RTX-CLP2

# GLOSSARY OF PESTICIDE/PCB 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.

## 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.

SP = Indicates Spiked Compound.

## GLOSSARY OF PESTICIDE/PCB DATA

| | | |
|---|---|---|
| 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. |

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

**Lionville Laboratory, Inc.**

Pesticide/PCBs by GC, CLP List

Report Date: 05/30/03 09:03

RFW Batch Number: **0305L473** Client: **TNUHANFORD B03-017 H2235** Work Order: 11343606001 Page: 1

| | Cust ID: | J00P23 | | J00P24 | | J00P25 | | J00P25 | | J00P25 | | J00P25 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | | 002 | | 003 | | 003 DL | | 003 MS | | 003 MSD | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | |
| | D.F.: | 50.0 | | 50.0 | | 50.0 | | 250 | | 50.0 | | 50.0 | |
| | Units: | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | |
| Surrogate: | Tetrachloro-m-xylene | D | % | D | % | D | % | D | % | D | % | D | % |
| | Decachlorobiphenyl | D | % | D | % | D | % | D | % | D | % | D | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Alpha-BHC | | 500 | U | 250 | U | 630 | U | NA | | 6300 | U | 630 | U |
| Beta-BHC | | 500 | U | 250 | U | 630 | U | NA | | 6300 | U | 630 | U |
| Delta-BHC | | 500 | U | 250 | U | 630 | U | NA | | 6300 | U | 630 | U |
| gamma-BHC (Lindane) | | 500 | U | 250 | U | 630 | U | NA | | D | % | D | % |
| Heptachlor | | 500 | U | 250 | U | 630 | U | NA | | D | % | D | % |
| Aldrin | | 500 | U | 250 | U | 630 | U | NA | | D | % | D | % |
| Heptachlor epoxide | | 500 | U | 250 | U | | E | 16000 | | 25000 | | 5600 | |
| Endosulfan I | | 500 | U | 250 | U | 630 | U | NA | | 6300 | U | 630 | U |
| Dieldrin | | 1000 | U | 500 | U | 1300 | U | NA | | D | % | D | % |
| 4,4'-DDE | | 1000 | U | 500 | U | 4900 | .I | NA | | 9100 | J | 1900 | |
| Endrin | | 1000 | U | 500 | U | 1300 | U | NA | | D | % | D | % |
| Endosulfan II | | 1000 | U | 500 | U | 1300 | U | NA | | 13000 | U | 1300 | U |
| 4,4'-DDD | | 1000 | U | 500 | U | 1300 | U | NA | | 13000 | U | 1300 | U |
| Endosulfan sulfate | | 1000 | U | 500 | U | 1300 | U | NA | | 13000 | U | 1300 | U |
| 4,4'-DDT | | 9300 | | 500 | U | | E | 42000 | | D | % | D | % |
| Methoxychlor | | 5000 | U | 2500 | U | 31000 | | NA | | 61000 | J | 11000 | |
| Endrin ketone | | 1000 | U | 500 | U | 1300 | U | NA | | 13000 | U | 1300 | U |
| Endrin aldehyde | | 1000 | U | 500 | U | 1300 | U | NA | | 13000 | U | 1300 | U |
| alpha-Chlordane | | 500 | U | 250 | U | | E | 16000 | .I | 6300 | U | 5200 | .I |
| gamma-Chlordane | | 500 | U | 250 | U | 630 | U | NA | | 6300 | U | 1200 | .I |
| Toxaphene | | 50000 | U | 25000 | U | 63000 | U | NA | | 630000 | U | 63000 | U |

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

**Lionville Laboratory, Inc.**

Pesticide/PCBs by GC, CLP List

Report Date: 05/30/03 09:03

RFW Batch Number: **0305L473** Client: **TNUHANFORD B03-017 H2235** Work Order: 11343606001 Page: 2

| | Cust ID: | J00P26 | | J00P55 | | J00P56 | | J00P57 | | PBLKUR | | PBLKUR BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 004 | | 005 | | 006 | | 007 | | 03LE0626-MB1 | | 03LE0626-MB1 | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOLID | | SOIL | | SOIL | |
| | D.F.: | 50.0 | | 50.0 | | 50.0 | | 50.0 | | 1.00 | | 1.00 | |
| | Units: | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | |
| Surrogate: | Tetrachloro-m-xylene | D | % | D | % | D | % | D | % | 90 | % | 95 | % |
| | Decachlorobiphenyl | D | % | D | % | D | % | D | % | 115 | % | 115 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Alpha-BHC | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| Beta-BHC | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| Delta-BHC | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| gamma-BHC (Lindane) | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 98 | % |
| Heptachlor | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 106 | % |
| Aldrin | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 98 | % |
| Heptachlor epoxide | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| Endosulfan I | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| Dieldrin | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 114 | % |
| 4,4'-DDE | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| Endrin | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 131 * | % |
| Endosulfan II | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| 4,4'-DDD | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| Endosulfan sulfate | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| 4,4'-DDT | | 1000 | U | 590 | | 500 | U | 5400 | | 3.3 | U | 117 | % |
| Methoxychlor | | 5000 | U | 2500 | U | 2500 | U | 5000 | U | 17 | U | 17 | U |
| Endrin ketone | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| Endrin aldehyde | | 1000 | U | 500 | U | 500 | U | 1000 | U | 3.3 | U | 3.3 | U |
| alpha-Chlordane | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| gamma-Chlordane | | 500 | U | 250 | U | 250 | U | 500 | U | 1.7 | U | 1.7 | U |
| Toxaphene | | 50000 | U | 25000 | U | 25000 | U | 50000 | U | 170 | U | 170 | U |

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

| Lionville Laboratory Use Only |
|---|
| 0305L473 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hamford B03-017

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Orlette Johnson

QC: SPEC  Del: STD  TAT: 7 days

Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | — | — |
| #/Type Container | Liquid | | | | | | |
| | Solid | lag | lag | -1 | lag | lag | lag |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | — | — | — | — | — | — |
| ANALYSES REQUESTED | | ORGANIC: VOA | BNA | Pest/PCB | Herb | INORG: Metal | CN | Sulfides |

Lionville Laboratory Use Only

MATRIX CODES:
S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNTO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-Feb | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

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

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7922 5297 1515/0.8° 7922 5297 1559

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-113 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE OSPC |

Price Code 9C

Air Quality ☐

Data Turnaround 7 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

*Non-Rad Area, No Activity Report Rquired*

Special Handling and/or Storage

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P23 | OTHER SOLID | 5·19·03 | 1150 | X | X | X | | | | | | | |
| J00P24 | OTHER SOLID | 5·19·03 | 1200c | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From<br>R Fahlberg R.Fahlberg 5-19-03 | Date/Time 1600 | Received By/Stored In<br>3RC 3728 5·19·03 | Date/Time 1600 |
| Relinquished By/Removed From<br>3C 3728 52103 | Date/Time 1300 | Received By/Stored In<br>SJ GALE | Date/Time 52103 1300 |
| Relinquished By/Removed From<br>SJ GALE | Date/Time 52103 1300 | Received By/Stored In<br>FED EX | Date/Time |
| Relinquished By/Removed From<br>Fed Ex 5-27-03 | Date/Time 0900 | Received By/Stored In<br>D.J. Smith 5-27-03 | Date/Time 0940 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality ☐ |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | | | | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | | | | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | | | | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | | | | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|---|---|---|---|
| Relinquished By/Removed From<br>R Fahlberg R Fahlberg | Date/Time<br>5-19-03 1215 | Received By/Stored In<br>~~3R~~ 3-C 3728 | Date/Time 1600<br>5-19-03 |
| Relinquished By/Removed From<br>3C 3728 | Date/Time<br>52103 1300 | Received By/Stored In<br>S JOALE | Date/Time<br>52103 1300 |
| Relinquished By/Removed From<br>S JOALE | Date/Time<br>52103 1300 | Received By/Stored In<br>FED EX | Date/Time |
| Relinquished By/Removed From<br>Fed Ex | Date/Time<br>5-22-03 10900 | Received By/Stored In<br>[signature] | Date/Time<br>5-22-03 10900 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-115 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality ☐ | Data Turnaround<br>7 Days |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | | |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. 5085 037 C | | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | |

| | Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | J00P26 | OTHER SOLID | 5.19.03 | 1220 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From | Date/Time 1600 | Received By/Stored In | Date/Time 1600 |
| R Fahlberg R.Fahlberg 5.19.03 | | 3C 3728 5.19.03 | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| 3C 3728 52103 | 1300 | SJ GALE 52103 | 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| SJ GALE 52103 | 1300 | FED EX | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Fed Ex 5.22.03 | 1090 | D Smith 5.22.03 | 0900 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| | | | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-120 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Price Code 9C | Data Turnaround<br>7 Days | Air Quality — | |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | SAF No.<br>B03-017 | |
| Ice Chest No. ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030 23G | | Bill of Lading/Air Bill No. SBE 05PC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area, No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS | Matrix * |
|---|---|---|---|
| Relinquished By/Removed From: R. Fahlberg R. Fahlberg 5·19·03 Date/Time 1600 | Received By/Stored In: 3C 3728 5·19·03 Date/Time 1600 | (1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV) | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W = Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From: 3C 3728 52103 Date/Time 1300 | Received By/Stored In: EJGALE 52103 Date/Time 1300 | | |
| Relinquished By/Removed From: EJGALE 52103 Date/Time 1300 | Received By/Stored In: FED EX Date/Time | | |
| Relinquished By/Removed From: FED EX 5.22.03/0900 Date/Time | Received By/Stored In: [illegible] 5.22.03/0900 Date/Time | | |
| Relinquished By/Removed From Date/Time | Received By/Stored In Date/Time | | |
| Relinquished By/Removed From Date/Time | Received By/Stored In Date/Time | | |

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

| | | | |
|---|---|---|---|
| LABORATORY SECTION | Received By | Title | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 5-22-03

CAF# / SOW# / Release #: B03-017

Laboratory SDG #: Q3051473

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

Cooler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P23 | 001 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P24 | 002 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P25 | 003 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P25 | 003 MS | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P25 | 003 MSD | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P26 | 004 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P55 | 005 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P56 | 006 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |
| J00P57 | 007 | SO | 03LE0626 | 05/19/03 | 05/26/03 | 05/30/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| PBLKUR | MB1 | S | 03LE0626 | N/A | 05/26/03 | 05/29/03 |
| PBLKUR | MB1 BS | S | 03LE0626 | N/A | 05/26/03 | 05/29/03 |

6/2/03

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD B03-017
**LVL #:** 0305L473
**SDG/SAF #:** H2235/B03-017

**W.O. #:** 11343-606-001-9999-00
**Date Received:** 05-22-03

**PCB**

The set of samples consisted of seven (7) solid samples collected on 05-19-03.

The samples and their associated QC samples were extracted on 05-26-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-29,30-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

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

2. All required holding times for extraction and analysis have been met.

3. All samples and their associated QC samples received Sulfuric Acid and Sulfur cleanups.

4. The method blank was below the reporting limits for all target compounds.

5. All obtainable surrogate recoveries were within acceptance criteria.

6. All blank spike recoveries were within acceptance criteria.

7. Matrix spike recoveries were unobtainable due to the dilution required for analysis.

8. All samples required instrument dilutions due to the high concentrations of target and non-target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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 12 pages.

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

11. 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

6/4/03
Date

pef\r:\group\data\pest\tnu hanford\05L-473.pcb

LVLI
LIONVILLE LABORATORY INC.

# GLOSSARY OF PESTICIDE/PCB 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.

## 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.

SP = Indicates Spiked Compound.

## GLOSSARY OF PESTICIDE/PCB DATA

| | | |
|---|---|---|
| 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. |

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

**Lionville Laboratory, Inc.**

PCBs by GC

Report Date: 05/30/03 15:44

RFW Batch Number: **0305L473** Client: **TNUHANFORD B03-017 H2235** Work Order: 11343606001 Page: 1

9

| | Cust ID: | J00P23 | | J00P24 | | J00P25 | | J00P25 | | J00P25 | | J00P26 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | | 002 | | 003 | | 003 MS | | 003 MSD | | 004 | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | | SOLID | |
| | D.F.: | 50.0 | | 10.0 | | 250 | | 250 | | 1.00 | | 10.0 | |
| | Units: | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | |
| Surrogate: | Decachlorobiphenyl | D | % | D | % | D | % | D | % | D | % | D | % |
| | Tetrachloro-m-xylene | D | % | D | % | D | % | D | % | D | % | D | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Aroclor-1016 | | 4500 | U | 450 | U | 28000 | U | D | % | D | % | 900 | U |
| Aroclor-1221 | | 4500 | U | 450 | U | 28000 | U | 11000 | U | 45 | U | 900 | U |
| Aroclor-1232 | | 4500 | U | 450 | U | 28000 | U | 11000 | U | 45 | U | 900 | U |
| Aroclor-1242 | | 4500 | U | 450 | U | 28000 | U | 11000 | U | 45 | U | 900 | U |
| Aroclor-1248 | | 4500 | U | 450 | U | 28000 | U | 11000 | U | 45 | U | 900 | U |
| Aroclor-1254 | | 95000 | | 2200 | | 410000 | | 260000 | | 250000 | | 3300 | |
| Aroclor-1260 | | 4500 | U | 450 | U | 28000 | U | D | % | D | % | 900 | U |

| | Cust ID: | J00P55 | | J00P56 | | J00P57 | | PBLKUR | | PBLKUR BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 005 | | 006 | | 007 | | 03LE0626-MB1 | | 03LE0626-MB1 | |
| | Matrix: | SOLID | | SOLID | | SOLID | | SOIL | | SOIL | |
| | D.F.: | 10.0 | | 10.0 | | 50.0 | | 1.00 | | 1.00 | |
| | Units: | UG/KG | | UG/KG | | UG/KG | | UG/KG | | UG/KG | |
| Surrogate: | Decachlorobiphenyl | D | % | D | % | D | % | 90 | % | 105 | % |
| | Tetrachloro-m-xylene | D | % | D | % | D | % | 80 | % | 90 | % |
| | | | fl | | fl | | fl | | fl | | fl |
| Aroclor-1016 | | 450 | U | 450 | U | 4500 | U | 15 | U | 105 | % |
| Aroclor-1221 | | 450 | U | 450 | U | 4500 | U | 15 | U | 15 | U |
| Aroclor-1232 | | 450 | U | 450 | U | 4500 | U | 15 | U | 15 | U |
| Aroclor-1242 | | 450 | U | 450 | U | 4500 | U | 15 | U | 15 | U |
| Aroclor-1248 | | 450 | U | 450 | U | 4500 | U | 15 | U | 15 | U |
| Aroclor-1254 | | 6300 | | 450 | U | 49000 | | 15 | U | 15 | U |
| Aroclor-1260 | | 450 | U | 1800 | | 4500 | U | 15 | U | 108 | % |

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

| Lionville Laboratory Use Only |
|---|
| 0305L473 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hamford B03-017

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC  Del: STD  TAT: 7 days

Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | | |
| #/Type Container | Liquid | | | | | | |
| | Solid | 1 aq | 1 aq | -1 | 1 aq | 1 aq | 1 aq |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | — | — | — | — | — | — |
| ANALYSES REQUESTED | | ORGANIC | | | INORG | | |
| | | VOA | BNA | Pest/PCB | Herb | Metal | CN | Sulfides |

Lionville Laboratory Use Only

MATRIX CODES:
S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNTO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-19-03 | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

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

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7922 5297 1515/0.8 7922 5297 1559

00

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-113 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH |
| Price Code: 9C | Data Turnaround: 7 Days | Air Quality ☐ | |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | SAF No.: B03-017 | |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX |
| Shipped To: TMA/RECRA | Offsite Property No.: A030236 | | Bill of Lading/Air Bill No.: SEE OSPC |

POSSIBLE SAMPLE HAZARDS/REMARKS

*Non-Rad Area, No Activity Report Rquired*

Special Handling and/or Storage

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | | |

| | Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J00P23 | OTHER SOLID | 5·19·03 | 1150 | X | X | X | | | | | | | | |
| 2 | J00P24 | OTHER SOLID | 5·19·03 | 1200 | X | X | X | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS |
|---|---|---|
| Relinquished By/Removed From: R Fahlberg 5·19·03 Date/Time 1600 | Received By/Stored In: 3BC 3728 5·19·03 Date/Time 1600 | (1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7471 - (CV) |
| Relinquished By/Removed From: 3C 3728 5/21/03 Date/Time 1300 | Received By/Stored In: SJ GALE 5/21/03 Date/Time 1300 | |
| Relinquished By/Removed From: SJ GALE 5/21/03 Date/Time 1300 | Received By/Stored In: FED EX Date/Time | |
| Relinquished By/Removed From: Fed Ex 5/22/03 Date/Time 0900 | Received By/Stored In: D.X Smith 5/22/03 Date/Time 0900 | Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03 |
| Relinquished By/Removed From: Date/Time | Received By/Stored In: Date/Time | |
| Relinquished By/Removed From: Date/Time | Received By/Stored In: Date/Time | |

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality ☐ |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|---|---|---|---|
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| R Fahlberg R Fahlberg | 5-19-03 1215 | ~~3R~~ 5-19-03 3-C 3728 | 1600 5-19-03 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| 3C 3728 | 52103 1300 | S JOALE | 52103 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| S JOALE | 52103 1300 | FED EX | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Fed Ex | 5-22-03 10900 | [signature] | 5-22-03 10900 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| | | | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-115 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH |
| Price Code: 9C | Data Turnaround: 7 Days | Air Quality: ☐ | |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | SAF No.: B03-017 | |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX |
| Shipped To: TMA/RECRA | Offsite Property No.: A030236 | | Bill of Lading/Air Bill No.: 5085 037 7C |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P26 | OTHER SOLID | 5.19.03 | 1220 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R.Fahlberg | 5.19.03 1600 | 3C 3728 | 5.19.03 1600 |
| 3C 3728 | 52103 1300 | SJ GALEA | 52103 1300 |
| SJ GALEA | 52103 1300 | FED EX | |
| Fed Ex | 5.22.03 1090 | [illegible] | 5.22.03 0900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-120 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality — |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030 236 | | Bill of Lading/Air Bill No. SEE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area. No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS | Matrix * |
|---|---|---|---|
| Relinquished By/Removed From: R.Fahlberg R.Fahlberg Date/Time: 1600 5·19·03 | Received By/Stored In: 3C 3728 Date/Time: 1600 5·19·03 | (1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV) | S=Soil<br>SE=Sediment<br>SO=Solid<br>SI=Sludge<br>W = Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From: 3C 3728 Date/Time: 52103 1300 | Received By/Stored In: SJGALE Date/Time: 52103 1300 | | |
| Relinquished By/Removed From: SJGALE Date/Time: 52103 1300 | Received By/Stored In: FED EX Date/Time: | | |
| Relinquished By/Removed From: Fed Ex Date/Time: 5·22·03/0900 | Received By/Stored In: [signature] Date/Time: 5·22·03/0900 | | |
| Relinquished By/Removed From: Date/Time: | Received By/Stored In: Date/Time: | | |
| Relinquished By/Removed From: Date/Time: | Received By/Stored In: Date/Time: | | |

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

| LABORATORY SECTION | Received By | Title | Date/Time |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

rchase Order/Project:

DATE: 5-22-03

AF# / SOW# / Release #: B03-017

aboratory SDG #: Q3056473

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

Cooler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B03-017 #2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P25 | 003 | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P26 | 004 | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P55 | 005 | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P56 | 006 | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P56 | 006 MS | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P56 | 006 MSD | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |
| J00P57 | 007 | SO | 03LE0625 | 05/19/03 | 05/25/03 | 05/28/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| PBLKUM | MB1 | S | 03LE0625 | N/A | 05/25/03 | 05/27/03 |
| PBLKUM | MB1 BS | S | 03LE0625 | N/A | 05/25/03 | 05/27/03 |
| PBLKUM | MB1 BSD | S | 03LE0625 | N/A | 05/25/03 | 05/27/03 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU HANFORD B03-017
**LVL#:** 0305L473
**SDG/SAF#:** H2235/B03-017

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 05-22-03

**HERBICIDE**

The set of samples consisted of five (5) solid samples collected on 05-19-03.

The samples and their associated QC samples were extracted on 05-25-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 05-27,28-03. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. Four (4) of sixteen (16) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Matrix spike recoveries were unobtainable due to the dilution required for analysis.
7. Several samples and the matrix QC required instrument dilutions due to the high concentrations of non-target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
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.
10. To the best of my knowledge, this data report is in compliance with the terms and conditions of the purchase order, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hard copy data package and in the electronic data submitted on diskette has been authorized by the cognizant laboratory manager or his/her designee to be accurate as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/2/03
Date

pef\r:\group\data\herb\\tnu\05L-473.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 12 pages.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 03GC156

Initiator: Bryce Santoro
Date: 5/28/03
Client: TNU

Batch: 03052453, 454, 472, 473
Samples: BS, BSD, 472-MS/MSD, 454-MSD
Method: SW846/MCAWW/CLP/

Parameter: dHBOX
Matrix: Soil
Prep Batch: 03LE0625

**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 BS and BSD recoveries (see attached).
(2) Low MS and MSD recoveries in 03052472-001MS and 001MSD. (See attached).
(3) High Dinoseb recovery in 03052454-004MSD

**2. Known or Probable Causes(s)**

(2) Matrix interference.

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

Other Description:
Narrate

**4. Project Manager Instructions**...signature/date: [signature] 5/28/03
✓ 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: [signature]
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

**When Final Action has been recorded, forward original to QA Specialist for distribution and filing.**

| Route | Distribution of Completed SDR | Route | Distribution of Completed SDR |
|---|---|---|---|
| __ | X Initiator | __ | __ Metals: Beegle |
| __ | X Lab General Manager: M. Taylor | __ | __ Inorganic: Perrone |
| ✓ | X Project Mgr: Stone/Johnson/Haslett | __ | __ GC/LC: Kiger |
| __ | X Technical Mgr: Wesson/Daniels | __ | __ MS: Rychlak/Layman |
| __ | X QA (file) | __ | __ Log-in: Melnic |
| __ | __ Data Management: Feldman | __ | __ Admin: Soos |
| __ | __ Sample Prep: Beegle/Kiger | __ | __ Other: _____ |

QA-105-A-0801

# GLOSSARY OF HERBICIDE 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.

## 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.

SP = Indicates Spiked Compound.

## GLOSSARY OF HERBICIDE DATA

| | | |
|---|---|---|
| P | = | This flag is used for an Herbicide 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 HPLC. |

R:/SHARE/HPLC/OLCSCGLOS

**Lionville Laboratory, Inc.**

Herbicides, Special List

Report Date: 05/28/03 12:08

RFW Batch Number: **0305L473** Client: **TNU-HANFORD B03-017** Work Order: 11343606001 Page: 1

9

| | Cust ID: | J00P25 | J00P26 | J00P55 | J00P56 | J00P56 | J00P56 |
|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 003 | 004 | 005 | 006 | 006 MS | 006 MSD |
| | Matrix: | SOLID | SOLID | SOLID | SOLID | SOLID | SOLID |
| | D.F.: | 50.0 | 1.00 | 1.00 | 10.0 | 10.0 | 10.0 |
| | Units: | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg |
| Surrogate: | DCAA | D % | 34 % | 36 % | D % | D % | D % |
| Dalapon | | 50000 U | 1000 U | 500 U | 5000 U | D % | D % |
| Dicamba | | 20000 U | 400 U | 200 U | 2000 U | D % | D % |
| Dichloroprop | | 50000 U | 1000 U | 500 U | 5000 U | D % | D % |
| 2,4-D | | 10000 U | 200 U | 100 U | 1000 U | D % | D % |
| 2,4,5-TP (Silvex) | | 5000 U | 100 U | 50 U | 500 U | D % | D % |
| 2,4,5-T | | 5000 U | 100 U | 50 U | 500 U | D % | D % |
| 2,4-DB | | 50000 U | 1000 U | 500 U | 5000 U | D % | D % |
| Dinoseb | | 5000 U | 100 U | 50 U | 500 U | D % | D % |

| | Cust ID: | J00P57 | PBLKUM | PBLKUM BS | PBLKUM BSD |
|---|---|---|---|---|---|
| Sample Information | RFW#: | 007 | 03LE0625-MB1 | 03LE0625-MB1 | 03LE0625-MB1 |
| | Matrix: | SOLID | SOIL | SOIL | SOIL |
| | D.F.: | 1.00 | 1.00 | 1.00 | 1.00 |
| | Units: | ug/kg | ug/kg | ug/kg | ug/kg |
| Surrogate: | DCAA | 83 % | 102 % | 149 % | 87 % |
| Dalapon | | 1000 U | 170 U | 34 * % | 29 * % |
| Dicamba | | 400 U | 67 U | 80 % | 48 * % |
| Dichloroprop | | 1000 U | 170 U | 82 % | 62 % |
| 2,4-D | | 200 U | 33 U | 69 % | 51 % |
| 2,4,5-TP (Silvex) | | 100 U | 17 U | 81 % | 67 % |
| 2,4,5-T | | 100 U | 17 U | 62 % | 55 * % |
| 2,4-DB | | 1000 U | 170 U | 94 % | 66 % |
| Dinoseb | | 100 U | 17 U | 84 % | 50 % |

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

Lionville Laboratory Use Only

0305L473

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hamford B03-017

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Orlette Johnson

QC: SPEC  Del: STD  TAT: 7 days

Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | | |
| #/Type Container | Liquid | | | | | | |
| | Solid | 1 aq | 1 aq | -1 | 1 aq | 1 aq | 1 aq |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | – | – | – | – | – | – |
| ANALYSES REQUESTED | | ORGANIC: VOA | BNA | Pest/PCB | Herb | INORG: Metal | CN | Sulfides |

MATRIX CODES:
S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNTO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-19-03 | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

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

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

7922 5297 1515/0.8 7922 5297 1559

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-113 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH |
| Price Code: 9C | Data Turnaround: 7 Days | Air Quality ☐ | |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | SAF No.: B03-017 | |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX |
| Shipped To: TMA/RECRA | Offsite Property No.: A030236 | Bill of Lading/Air Bill No.: SEE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area, No Activity Report Rquired*

**Special Handling and/or Storage**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P23 | OTHER SOLID | 5-19-03 | 1150 | X | X | X | | | | | | | |
| J00P24 | OTHER SOLID | 5-19-03 | 1200c | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From: R Fahlberg | Date/Time: 5-19-03 1600 | Received By/Stored In: 3RC 3728 | Date/Time: 5-19-03 1600 |
| Relinquished By/Removed From: 3C 3728 | Date/Time: 52103 1300 | Received By/Stored In: SJ GALE | Date/Time: 52103 1300 |
| Relinquished By/Removed From: SJ GALE | Date/Time: 52103 1300 | Received By/Stored In: FED EX | Date/Time: |
| Relinquished By/Removed From: Fed Ex | Date/Time: 5-27-03 0900 | Received By/Stored In: D. Smith | Date/Time: 5-27-03 0900 |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality — |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|---|---|---|---|
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| R. Fahlberg R. Fahlberg | 5-19-03 1215 | ~~3R~~ 5-19-03 3-C 3728 | 1600 5-19-03 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| 3C 3728 | 52103 1300 | S JOALE | 52103 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| S JOALE | 52103 1300 | FED EX | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Fed Ex | 5-22-03 10900 | [illegible] | 5-22-03 10900 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-115 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH |
| Price Code: 9C | Data Turnaround: 7 Days | Air Quality: — | |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | SAF No.: B03-017 | |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX |
| Shipped To: TMA/RECRA | Offsite Property No.: AO 30236 | | Bill of Lading/Air Bill No.: 5085 037 C |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P26 | OTHER SOLID | 5.19.03 | 1220 | X | X | X | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R Fahlberg | 1600 5.19.03 | 3C 3728 | 1600 5.19.03 |
| 3C 3728 | 52103 1300 | SJ GALEA | 52103 1300 |
| SJ GALEA | 52103 1300 | FED EX | |
| Fed Ex | 5.22.03 1000 | | 5.22.03 0800 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-120 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C | Data Turnaround<br>7 Days |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Air Quality — | |
| Ice Chest No. ER C 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030 236 | | Bill of Lading/Air Bill No. SBE 05PC | | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area. No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R. Fahlberg R. Fahlberg | 1600 5·19·03 | 3C 3728 | 1600 5·19·03 |
| 3C 3728 | 52103 1300 | E.J. GALE | 52103 1300 |
| S.J. GALE | 52103 1300 | FED EX | |
| FED EX | 5·22·03/0900 | | 5·22·03/0900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref# 3C on 5/21/03

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 5-22-03

SAF# / SOW# / Release #: B03-017

Laboratory SDG #: Q3C05L473

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

Cooler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P23 | | | | | | |
| SILVER, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 001 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| MERCURY, TOTAL | 001 REP | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| MERCURY, TOTAL | 001 MS | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 001 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P24 | | | | | | |
| SILVER, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 002 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 002 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P25 | | | | | | |
| SILVER, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SILVER, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SILVER, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| CADMIUM, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 003 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| LEAD, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| LEAD, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 003 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 003 REP | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 003 MS | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P26 | | | | | | |
| SILVER, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 004 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 004 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P55 | | | | | | |
| SILVER, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 005 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 005 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P56 | | | | | | |
| SILVER, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| BARIUM, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 006 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 006 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| J00P57 | | | | | | |
| SILVER, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| MERCURY, TOTAL | 007 | SO | 03C0126 | 05/19/03 | 05/27/03 | 05/28/03 |
| LEAD, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | 007 | SO | 03L0294 | 05/19/03 | 05/27/03 | 05/29/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| SILVER LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| SILVER, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| ARSENIC LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| ARSENIC, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| BARIUM LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| BARIUM, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| CADMIUM LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| CADMIUM, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| CHROMIUM LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| CHROMIUM, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| MERCURY LABORATORY | LC1 BS | S | 03C0126 | N/A | 05/27/03 | 05/28/03 |
| MERCURY, TOTAL | MB1 | S | 03C0126 | N/A | 05/27/03 | 05/28/03 |
| LEAD LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| LEAD, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| SELENIUM LABORATORY | LC1 BS | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |
| SELENIUM, TOTAL | MB1 | S | 03L0294 | N/A | 05/27/03 | 05/29/03 |

LIONVILLE LABORATORY INC.

**Analytical Report**

**Client:** TNU-HANFORD B03-017
**LVL#:** 0305L473
**SDG/SAF#:** H2235/B03-017

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 05-22-03

## METALS CASE NARRATIVE

1. This narrative covers the analyses of 7 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

   Samples J00P23, J00P24, and J00P55 were reported with 4 fold dilutions due to sample matrix.

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

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

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at

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 22 pages.



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

meaningful concentration level for the following analytes:

| Sample ID | Element | PDS Concentration (ppb) | PDS % Recovery |
|---|---|---|---|
| J00P25 | Chromium | 200 | 93.1 |
| | Lead | 200 | 83.9 |

12. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

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

6/2/07
Date

jjw/m05-473

LIONVILLE LABORATORY INC.

# METALS METHOD GLOSSARY

**The following methods are used as reference for the digestion and analysis of samples contained within this**
**Lot#:** 0305L473

**Leaching Procedure:** __1310 __1311 __1312 __Other:_____

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

**Metals Digestion Methods:** __3005A __3010A __3015 __3020A X3050B __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 | X 6010B | __7060A [5] | __200.7 | __206.2 | __3113B | | __99 |
| Barium | X 6010B | | __200.7 | | | | __99 |
| Beryllium | __6010B | | __200.7 | | | | __99 |
| Bismuth | __6010B [1] | | __200.7 [1] | | | __1620 | __99 |
| Boron | __6010B | | __200.7 | | | | __99 |
| Cadmium | X 6010B | __7131A [5] | __200.7 | __213.2 | | | __99 |
| Calcium | __6010B | | __200.7 | | | | __99 |
| Chromium | X 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 | X 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] | X 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 | X 6010B | __7740 [5] | __200.7 | __270.2 | __3113B | | __99 |
| Silicon | __6010B [1] | | __200.7 | | | __1620 | __99 |
| Silica | __6010B | | __200.7 | | | __1620 | __99 |
| Silver | X 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 |

6

**Other:**_____ **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 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | J00P23 | Silver, Total | 0.45 u | MG/KG | 0.45 | 4.0 |
| | | Arsenic, Total | 18.2 | MG/KG | 1.2 | 4.0 |
| | | Barium, Total | 277 | MG/KG | 0.08 | 4.0 |
| | | Cadmium, Total | 3.4 | MG/KG | 0.15 | 4.0 |
| | | Chromium, Total | 2280 | MG/KG | 0.38 | 4.0 |
| | | Mercury, Total | 0.16 | MG/KG | 0.02 | 1.0 |
| | | Lead, Total | 12000 | MG/KG | 0.87 | 4.0 |
| | | Selenium, Total | 1.6 u | MG/KG | 1.6 | 4.0 |
| -002 | J00P24 | Silver, Total | 0.45 u | MG/KG | 0.45 | 4.0 |
| | | Arsenic, Total | 1.2 u | MG/KG | 1.2 | 4.0 |
| | | Barium, Total | 106 | MG/KG | 0.07 | 4.0 |
| | | Cadmium, Total | 66.3 | MG/KG | 0.15 | 4.0 |
| | | Chromium, Total | 8800 | MG/KG | 0.37 | 4.0 |
| | | Mercury, Total | 0.41 | MG/KG | 0.01 | 1.0 |
| | | Lead, Total | 40300 | MG/KG | 0.86 | 4.0 |
| | | Selenium, Total | 1.6 u | MG/KG | 1.6 | 4.0 |
| -003 | J00P25 | Silver, Total | 0.12 u | MG/KG | 0.12 | 1.0 |
| | | Arsenic, Total | 2.9 | MG/KG | 0.33 | 1.0 |
| | | Barium, Total | 62.5 | MG/KG | 0.02 | 1.0 |
| | | Cadmium, Total | 0.75 | MG/KG | 0.04 | 1.0 |
| | | Chromium, Total | 22.4 | MG/KG | 0.1 | 1.0 |
| | | Mercury, Total | 0.02 | MG/KG | 0.02 | 1.0 |
| | | Lead, Total | 94.6 | MG/KG | 0.23 | 1.0 |
| | | Selenium, Total | 0.42 u | MG/KG | 0.42 | 1.0 |
| -004 | J00P26 | Silver, Total | 0.11 u | MG/KG | 0.11 | 1.0 |
| | | Arsenic, Total | 2.2 | MG/KG | 0.30 | 1.0 |
| | | Barium, Total | 177 | MG/KG | 0.02 | 1.0 |
| | | Cadmium, Total | 25.4 | MG/KG | 0.04 | 1.0 |
| | | Chromium, Total | 24.3 | MG/KG | 0.09 | 1.0 |
| | | Mercury, Total | 0.02 | MG/KG | 0.01 | 1.0 |
| | | Lead, Total | 3320 | MG/KG | 0.21 | 1.0 |
| | | Selenium, Total | 0.39 u | MG/KG | 0.39 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -005 | J00P55 | Silver, Total | 0.44 u | MG/KG | 0.44 | 4.0 |
| | | Arsenic, Total | 7.3 | MG/KG | 1.2 | 4.0 |
| | | Barium, Total | 109 | MG/KG | 0.07 | 4.0 |
| | | Cadmium, Total | 1.8 | MG/KG | 0.15 | 4.0 |
| | | Chromium, Total | 1750 | MG/KG | 0.36 | 4.0 |
| | | Mercury, Total | 0.03 | MG/KG | 0.01 | 1.0 |
| | | Lead, Total | 2610 | MG/KG | 0.84 | 4.0 |
| | | Selenium, Total | 1.7 | MG/KG | 1.5 | 4.0 |
| -006 | J00P56 | Silver, Total | 0.12 u | MG/KG | 0.12 | 1.0 |
| | | Arsenic, Total | 1.7 | MG/KG | 0.33 | 1.0 |
| | | Barium, Total | 105 | MG/KG | 0.02 | 1.0 |
| | | Cadmium, Total | 0.61 | MG/KG | 0.04 | 1.0 |
| | | Chromium, Total | 29.2 | MG/KG | 0.1 | 1.0 |
| | | Mercury, Total | 0.02 u | MG/KG | 0.02 | 1.0 |
| | | Lead, Total | 263 | MG/KG | 0.23 | 1.0 |
| | | Selenium, Total | 0.46 | MG/KG | 0.42 | 1.0 |
| -007 | J00P57 | Silver, Total | 0.22 | MG/KG | 0.09 | 1.0 |
| | | Arsenic, Total | 2.1 | MG/KG | 0.25 | 1.0 |
| | | Barium, Total | 136 | MG/KG | 0.02 | 1.0 |
| | | Cadmium, Total | 0.79 | MG/KG | 0.03 | 1.0 |
| | | Chromium, Total | 1280 | MG/KG | 0.08 | 1.0 |
| | | Mercury, Total | 0.06 | MG/KG | 0.02 | 1.0 |
| | | Lead, Total | 9480 | MG/KG | 0.17 | 1.0 |
| | | Selenium, Total | 0.42 | MG/KG | 0.32 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/30/03

CLIENT: TNUHANFORD B03-017 H2235

LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| BLANK1 | 03L0294-MB1 | Silver, Total | 0.12 u | MG/KG | 0.12 | 1.0 |
| | | Arsenic, Total | 0.33 u | MG/KG | 0.33 | 1.0 |
| | | Barium, Total | 0.04 | MG/KG | 0.02 | 1.0 |
| | | Cadmium, Total | 0.04 u | MG/KG | 0.04 | 1.0 |
| | | Chromium, Total | 0.10 u | MG/KG | 0.10 | 1.0 |
| | | Lead, Total | 0.23 u | MG/KG | 0.23 | 1.0 |
| | | Selenium, Total | 0.42 u | MG/KG | 0.42 | 1.0 |
| BLANK1 | 03C0126-MB1 | Mercury, Total | 0.02 u | MG/KG | 0.02 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235

LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -001 | J00P23 | Mercury, Total | 0.28 | 0.16 | 0.16 | 74.7 | 1.0 |
| -003 | J00P25 | Silver, Total | 4.4 | 0.12u | 4.7 | 93.6 | 1.0 |
| | | Arsenic, Total | 172 | 2.9 | 189 | 89.3 | 1.0 |
| | | Barium, Total | 232 | 62.5 | 189 | 89.6 | 1.0 |
| | | Cadmium, Total | 5.0 | 0.75 | 4.7 | 90.3 | 1.0 |
| | | Chromium, Total | 50.8 | 22.4 | 18.9 | 150.3 | 1.0 |
| | | Lead, Total | 115 | 94.6 | 47.3 | 44.0 | 1.0 |
| | | Selenium, Total | 166 | 0.42u | 189 | 88.0 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235

LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -001REP | J00P23 | Mercury, Total | 0.16 | 0.14 | 16.1 | 1.0 |
| -003REP | J00P25 | Silver, Total | 0.12u | 0.11u | NC | 1.0 |
| | | Arsenic, Total | 2.9 | 2.4 | 18.9 | 1.0 |
| | | Barium, Total | 62.5 | 47.3 | 27.7 | 1.0 |
| | | Cadmium, Total | 0.75 | 0.87 | 14.4 | 1.0 |
| | | Chromium, Total | 22.4 | 22.3 | 0.45 | 1.0 |
| | | Lead, Total | 94.6 | 85.4 | 10.2 | 1.0 |
| | | Selenium, Total | 0.42u | 0.39u | NC | 1.0 |

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235

LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCS1 | 03L0294-LC1 | Silver, LCS | 49.3 | 50.0 | MG/KG | 98.6 |
| | | Arsenic, LCS | 916 | 1000 | MG/KG | 91.6 |
| | | Barium, LCS | 482 | 500 | MG/KG | 96.4 |
| | | Cadmium, LCS | 23.8 | 25.0 | MG/KG | 95.2 |
| | | Chromium, LCS | 49.5 | 50.0 | MG/KG | 99.0 |
| | | Lead, LCS | 236 | 250 | MG/KG | 94.5 |
| | | Selenium, LCS | 875 | 1000 | MG/KG | 87.5 |
| LCS1 | 03C0126-LC1 | Mercury, LCS | 6.3 | 6.2 | MG/KG | 102.1 |

| Lionville Laboratory Use Only |
|---|
| 0305L473 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hamford B03-017
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SPEC  Del: STD  TAT: 7 days

Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | — | — |
| #/Type Container | Liquid | | | | | | |
| | Solid | lag | lag | -1 | lag | lag | lag |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | — | — | — | — | — | — |

ANALYSES REQUESTED →

| | ORGANIC | | | | INORG | | |
|---|---|---|---|---|---|---|---|
| | VOA | BNA | Pest/PCB | Herb | Metal | CN | Sulfides |

MATRIX CODES:
S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNPO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-19-03 | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

| Relinquished | Received by | Date | Time |
|---|---|---|---|
| COMPOSITE WASTE | | | |

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-113 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE OSPC |

Price Code 9C

Air Quality ☐

Data Turnaround 7 Days

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area, No Activity Report Rquired*

**Special Handling and/or Storage**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | |

| | Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J00P23 | OTHER SOLID | 5.19.03 | 1150 | X | X | X | | | | | | | | |
| 2 | J00P24 | OTHER SOLID | 5.19.03 | 1200c | X | X | X | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From | Date/Time 1600 | Received By/Stored In | Date/Time 1600 |
| R Fahlberg | 5.19.03 | 3BC 3728 | 5.19.03 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| 3C 3728 | 52103 1300 | SJ GALE | 52103 1300 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| SJ GALE | 52103 1300 | FED EX | |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Fed Ex | 5.22.03/0800 | D. Smith | 5.22.03/0800 |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
Sl=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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality ☐ |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A030236 | | Bill of Lading/Air Bill No. SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area. No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R Fahlberg | 5-19-03 1215 | ~~3R~~ 3-C 3728 | 5-19-03 1600 |
| 3C 3728 | 52103 1300 | S Joale | 52103 1300 |
| S Joale | 52103 1300 | FED EX | |
| Fed Ex | 5-22-03 10900 | D Smith | 5-22-03 10900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**Matrix ***

S=Soil
SE=Sediment
SO=Solid
St=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 |
| **FINAL SAMPLE DISPOSITION** | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-115 | Page 1 of 1 |
|---|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH | Price Code 9C<br>Air Quality — |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 | Data Turnaround<br>7 Days |
| Ice Chest No. ERC 96 002 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX | |
| Shipped To<br>TMA/RECRA | Offsite Property No. A0 30236 | | Bill of Lading/Air Bill No. 505 037 C | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) RC 5-19-03 | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P26 | OTHER SOLID | 5.19.03 | 1220 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From: R Fahlberg | Date/Time: 5-19-03 1600 | Received By/Stored In: 3C 3728 | Date/Time: 5-19-03 1600 |
| Relinquished By/Removed From: 3C 3728 | Date/Time: 52103 1300 | Received By/Stored In: SJ GALES/[illegible] | Date/Time: 52103 1300 |
| Relinquished By/Removed From: SJ GALES/[illegible] | Date/Time: 52103 1300 | Received By/Stored In: FED EX | Date/Time: |
| Relinquished By/Removed From: Fed Ex | Date/Time: 5-22-03 1090 | Received By/Stored In: [illegible] | Date/Time: 5-22-03 1090 |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-120 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Price Code 9C | Data Turnaround<br>7 Days | Air Quality — | |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 |
| Ice Chest No.<br>ERC 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No.<br>A030 236 | | Bill of Lading/Air Bill No.<br>SEE OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area. No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|---|
| Relinquished By/Removed From | R. Fahlberg | 5·19·03 1600 | 3C 3728 | 5·19·03 1600 |
| Relinquished By/Removed From | 3C 3728 | 52103 1300 | S. GALE | 52103 1300 |
| Relinquished By/Removed From | S. GALE | 52103 1300 | FED EX | |
| Relinquished By/Removed From | FED EX | 5·22·03/0900 | | 5·22·03/0900 |
| Relinquished By/Removed From | | | Received By/Stored In | |
| Relinquished By/Removed From | | | Received By/Stored In | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

ENT: TNU Hanford

ase Order/Project:

DATE: 5-22-03

SOW# / Release #: B03-017

ratory SDG #: 03C5L473

E: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

oler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

aboratory Sample Custodian: D. Johnson

aboratory Project Manager:

# SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 03L0294
Date/Time Initiated: 5/27/03 1300
Date/Time Completed: 5/27/03 1600
Analyst(s): TCB
Matrix: Soil Water Other: Soil/DS
Instr. Type: AA ICP
Parameters: RCRA

Digested / Undigested (circle one)
Balance #: B20
Balance Cal Verif: Y NA
Hot Plate Temp: 90°

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

DW 200.7 (1994)
200.9
3113B

MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)

SM 3030C (NC)

CLP ILMO3.0
ILMO4.0

Other

TNU

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 03052473-001 | | 1.06 | 100 | N/A | TOT | COARSE | GREEN BROWN/SOIL | N/A | N/A |
| -002 | | 1.07 | | | | fine | BROWN, GREEN | | |
| -003 | | 1.01 | | | | | BROWN | | |
| -003R | | 1.07 | | | | | | | |
| -003S | 1.0 | 1.06 | | | | | | | |
| -004 | | 1.09 | | | | | | | |
| -005 | | 1.10 | | | | COARSE | | | |
| -006 | | 1.01 | | | | | RED | | |
| -007 | | 1.33 | | | | | RED | | |
| 03L0294-MB1 | | 1.0 | | <2 | | N/A | CLEAR | | |
| -LC1 | 1.0 | | | | | | | | |

TCB 5/27/03

Spiking IDs:
MS #: 8100-02-09
-10
-11
6072-56-01
LCS #: 6072-55-08-12
TCB 5/27/03 1013
-14
-15

Reagent IDs:
$HNO_3$ Y12033
HCL Y07045
$H_2O_2$ 5240X43H03
1:1 $HNO_3$ 8727-54-01
1:1 HCL

File ID#: IC029401
LIMS Transfer: Y N updated
Data Review By/Date: BMP, 05/29/03

**Lionville Laboratory Incorporated**

# MERCURY PREPARATION

Logbook # 9236

Analyst: [illegible] / D.T.
Date 5/27/03
Start Time/Temp: 1411/95°C
End Time/Temp: 1441/98°C

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

Prep Batch: 03C0126
Worksheet: HG052801
OP No. ME-7470A, Rev. 00

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

**NOTE: The Initial/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 | 19 | | | 10mL | 50mL | |
| 0.2 ug/l | L1 | 0.100 | | | | |
| 1.0 ug/l | 2 | 0.500 | | | | |
| 2.0 ug/l | 50 | 1.000 | | | | |
| 5.0 ug/l | X6 | 2.500 | | | | |
| 10.0 ug/l | L7 | 5.000 | | | | |
| ICV | L58 | 0.125 | 2.5 | | | |
| CCV | 318 | 0.250 | 5.0 | | | |
| ICB/CCB | 16/428 | | | | | % solids |
| MB1 | 494 | | | 0.30 gm | | PBS126 100.00 |
| LCS | 32 | | | 0.15 | | LCSS126 |
| 03052473-001 c | 182 | | | 0.31 | | 99.71 |
| 001R | 5084 | | | 0.33 | | |
| 001S | 216 | 0.500 | 1.0 | 0.31 | | |
| 002 | B8 | | | 0.34 | | 99.89 |
| 003 | L3 | | | ~~0.34~~ 0.32 gm | | 99.84 |
| 004 | 25 | | | 0.34 gm | | 99.76 |
| 005 | N30 | | | 0.35 | | 99.67 |
| 006 | 220 | | | 0.32 | | 99.96 |
| 007 | 55 | | | 0.33 | | 99.98 |
| 03052491-001 A | N4 | | | 0.34 | | 75.05 |
| 001R | 871 | | | 0.36 | | |

| Standard: | ID | Prep Date/Time |
|---|---|---|
| ICAL/MS | SCP 6072-056-02B | 5/27/03 1245 |
| IQV/CCV/LCS | US 6072-056-03A | |

Reviewed By/Date:

See book # 4527 for std traceability information

Soil LCS = ERA Metals in soil; True Value = ~~2.48~~ 6.21 mg/Kg
Catalogue # 540, Lot # ~~248~~ 248 MW 5/27/03 MW 5/27/03

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

ME-7470A-C-0801

**Lionville Laboratory Incorporated**

# MERCURY PREPARATION

Logbook # 9236

Analyst: [illegible] / D.T.

Date 5/27/03

Start Time/Temp: See pg 126B

End Time/Temp:

Instrument ID HG3.1

Balance #: B29 /NA

Pipette Calibration (Daily) (Y) ___

Prep Batch: 03C0126

Worksheet: HG052801

OP No. ME-7470A, Rev. 00

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

**NOTE: The Initial/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. |
|---|---|---|---|---|---|---|
| 0305L491-001S D | D41 | 0.500 | 1.0 | 0.33 | 50mL | 75.05 |
| 002 | K9 | | | 0.31 | | 92.89 |
| 003 | 60 | | | 0.31 | | 99.55 |
| 0305L492-001 A | 752 | | | 0.32 | | RAD 87.26 |
| 001R | 208 | | | 0.32 | | |
| 001S | L50 | 0.500 | 1.0 | 0.35 | | |
| 002 | P9 | | | 0.32 | | 79.23 |
| 003 | 750 | | | 0.32 | | 96.43 |
| 0305L408-001 | L17 | | | 0.31 | | 100.00 |
| 001R | P6 | | | 0.37 | | |
| 001S | 215 | 0.500 | 1.0 | 0.31 | | |
| 002 | 754 | | | 0.32 | | |
| 003 | YM | | | 0.37 | | |
| 004 | 68 | | | 0.36 | | |
| 005 | 565 | | | 0.31 | | |
| 0305L360-001 | 175 | | | 0.33 | | |
| -001S | P10 | 0.500 | 1.0 | 0.34 | | |

[illegible] 5/27/03

| Standard: | ID | Prep Date/Time |
|---|---|---|
| ICAL/MS | | |
| ICV/CCV/LCS | See page 126B | |

Reviewed By/Date:

See book # 4527 for std traceability information

Soil LCS = ERA Metals in soil; True Value = 2.48 mg/Kg
Catalogue # 540, Lot # 245

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

ME-7470A-C-0801

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00P23 | | | | | | |
| % SOLIDS | 001 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| J00P24 | | | | | | |
| % SOLIDS | 002 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| J00P25 | | | | | | |
| % SOLIDS | 003 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| TOTAL CYANIDE | 003 | SO | 03LCA48 | 05/19/03 | 05/27/03 | 05/27/03 |
| TOTAL CYANIDE | 003 REP | SO | 03LCA48 | 05/19/03 | 05/27/03 | 05/27/03 |
| TOTAL CYANIDE | 003 MS | SO | 03LCA48 | 05/19/03 | 05/27/03 | 05/27/03 |
| SULFIDE | 003 | SO | 03LSD024 | 05/19/03 | 05/27/03 | 05/28/03 |
| SULFIDE | 003 REP | SO | 03LSD024 | 05/19/03 | 05/27/03 | 05/28/03 |
| SULFIDE | 003 MS | SO | 03LSD024 | 05/19/03 | 05/27/03 | 05/28/03 |
| J00P26 | | | | | | |
| % SOLIDS | 004 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| J00P55 | | | | | | |
| % SOLIDS | 005 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| % SOLIDS | 005 REP | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| J00P56 | | | | | | |
| % SOLIDS | 006 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |
| J00P57 | | | | | | |
| % SOLIDS | 007 | SO | 03L%S071 | 05/19/03 | 05/23/03 | 05/24/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| TOTAL CYANIDE | LCS L | S | 03LCA48 | N/A | 05/27/03 | 05/27/03 |

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2235

DATE RECEIVED: 05/22/03 LVL LOT # :0305L473

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| TOTAL CYANIDE | LCS L | S | 03LCA48 | N/A | 05/27/03 | 05/27/03 |
| TOTAL CYANIDE | MB1 | S | 03LCA48 | N/A | 05/27/03 | 05/27/03 |
| SULFIDE | MB1 | S | 03LSD024 | N/A | 05/27/03 | 05/28/03 |
| SULFIDE | MB1 BS | S | 03LSD024 | N/A | 05/27/03 | 05/28/03 |

LIONVILLE LABORATORY INC.

## Analytical Report

**Client:** TNU-HANFORD B03-017 H2235
**LVL#:** 0305L473

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 05-22-03

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 7 solid samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met with the exception of Sulfide.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recoveries for Total Cyanide and Sulfide were within the 75-125% control limits.

8. The replicate analyses for Total Cyanide, Sulfide and Percent Solids were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/2/03
Date

njp\i05-473

The results presented in this report relate to the analytical testing and conditions of the samples upon 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 16 pages.



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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

| | ASTM | SW846 | OTHER |
|---|---|---|---|
| % Ash | __ D2216-80 | | |
| % Moisture | __ D2216-80 | | __ ILMO4.0 (e) |
| % Solids | ✓ D2216-80 | | __ ILMO4.0 (e) |
| % Volatile Solids | __ D2216-80 | | |
| ASTM Extraction in Water | __ D3987-81/85 | | |
| BTU | __ D240-87 | | |
| CEC | | __ 9081 | __ c |
| Chromium VI | | __ 3060A/7196A | |
| Corrosivity __ by coupon __ by pH | | __ 1110(mod) __ 9045C | |
| Cyanide, Total | | ✓ 9010B/9014 | __ ILMO4.0 (e) |
| Cyanide, Reactive | | __ Section 7.3/9014 | |
| Halides, Extractable Organic | | __ 9020B | __ EPA 600/4/84-008 |
| Halides, Total | | __ 9020B | __ EPA 600/4/84-008 |
| EP Toxicity | | __ 1310A | |
| Flash Point | | __ 1010 | |
| Ignitability | | __ 1010 | |
| Oil & Grease | | __ 9071A | |
| Carbon, Total Organic | | __ 9060 | __ Lloyd Kahn (mod) |
| Oxygen Bomb Prep for Anions | __ D240-87(mod) | __ 5050 | |
| Petroleum Hydrocarbons, Total Recoverable | | __ 9071 | __ EPA 418.1 |
| pH, Soil | | __ 9045C | |
| Sulfide, Reactive | | __ Section 7.3/9030B | |
| Sulfide | | ✓ 9030B(mod) | |
| Specific Gravity | __ D1429-76C/ | __ D5057-90 | |
| Sulfur, Total | | __ 9056 | |
| Synthetic Preparation Leach | | __ 1312 | |
| Paint Filter | | __ 9095A | |

**Other:** **Method:**

**Other:** **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

# 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
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

## ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | J00P23 | % Solids | 99.7 | % | 0.01 | 1.0 |
| -002 | J00P24 | % Solids | 99.9 | % | 0.01 | 1.0 |
| -003 | J00P25 | % Solids | 99.8 | % | 0.01 | 1.0 |
| | | Cyanide, Total | 0.32 u | MG/KG | 0.32 | 1.0 |
| | | Sulfide | 22.0 u | MG/KG | 22.0 | 1.0 |
| -004 | J00P26 | % Solids | 99.8 | % | 0.01 | 1.0 |
| -005 | J00P55 | % Solids | 99.7 | % | 0.01 | 1.0 |
| -006 | J00P56 | % Solids | 100 | % | 0.01 | 1.0 |
| -007 | J00P57 | % Solids | 100 | % | 0.01 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/30/03

CLIENT: TNUHANFORD B03-017 H2235

LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| BLANK1 | 03LCA48-MB1 | Cyanide, Total | 0.50 u | MG/KG | 0.50 | 1.0 |
| BLANK10 | 03LSD024-MB1 | Sulfide | 40.0 u | MG/KG | 40.0 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -003 | J00P25 | Cyanide, Total | 4.63 | 0.32u | 4.77 | 97.0 | 1.0 |
| | | Sulfide | 331 | 22.0u | 366 | 88.2 | 1.0 |
| BLANK10 | 03LSD024-MB1 | Sulfide | 523 | 40.0 u | 541 | 96.5 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -003REP | J00P25 | Cyanide, Total | 0.32u | 0.49u | NC | 1.0 |
| | | Sulfide | 22.0 u | 26.2 u | NC | 1.0 |
| -005REP | J00P55 | % Solids | 99.7 | 99.6 | 0.060 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2235 LVL LOT #: 0305L473

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | SPIKED AMOUNT | UNITS | %RECOV |
|---|---|---|---|---|---|---|
| LCSS1 | 03LCA48-LCS1 | Cyanide, Total LCS | 1.93 | 2.0 | MG/KG | 96.6 |
| LCSS2 | 03LCA48-LCS2 | Cyanide, Total LCS | 10.2 | 10.0 | MG/KG | 101.8 |

11

| Lionville Laboratory Use Only |
|---|
| 0305L473 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

Client: TNU-Hamford B03-017

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Orlette Johnson

QC: SPEC  Del: STD  TAT: 7 days

Date Rec'd: 5-22-03  Date Due: 5-29-03

| | | A | B | | C | D | E |
|---|---|---|---|---|---|---|---|
| Refrigerator # | | 2 | 2 | | 2 | — | 1 |
| #/Type Container | Liquid | | | | | | |
| | Solid | 1 ag | 1 ag | -1 | 1 ag | 1 ag | 1 ag |
| Volume | Liquid | | | | | | |
| | Solid | 120 | 250 | -1 | 60 | 120 | 120 |
| Preservatives | | — | — | — | — | — | — |
| ANALYSES REQUESTED | | ORGANIC: VOA | BNA | Pest/PCB | Herb | INORG: Metal | CN | Sulfides |

MATRIX CODES: S - 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 | 0625H | 0608H OPCB | OHBGX | MRCRATO | ICNTO | ISFD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | J00P23 | | | SO | 5-19-03 | 1150 | X | X | | X | | |
| 002 | J00P24 | | | | | 1200 | X | X | | X | | |
| 003 | J00P25 | | | | | 1215 | X | X | X | X | X | X |
| 004 | J00P26 | | | | | 1220 | X | X | X | X | | |
| 005 | J00P55 | | | | | 1155 | X | X | X | X | | |
| 006 | J00P56 | | | | | 1205 | X | X | X | X | | |
| 007 | J00P57 | | | | | 1210 | X | X | X | X | | |

Special Instructions: SAF # B03-017

Run Matrix QC

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 0.3 °C

| Relinquished by | Received by | Date | Time |
|---|---|---|---|
| [signature] | [signature] | 5-22-03 | 0900 |

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

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7922 5297 1515/0.8° 7922 5297 1559

12

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-113 | Page 1 of 1 |
|---|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH | Price Code: 9C; Data Turnaround: 7 Days |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | | SAF No.: B03-017 | Air Quality ☐ |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX | |
| Shipped To: TMA/RECRA | Offsite Property No.: A030236 | | Bill of Lading/Air Bill No.: SBE OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area, No Activity Report Rquired*

**Special Handling and/or Storage**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | | | None | Cool 4C | Cool 4C | Cool 4C | | | | | | |
| Type of Container | | | aG | aG | aG | aG | | | | | | |
| No. of Container(s) | | | 1 | 1 | 1 | 1 | | | | | | |
| Volume | | | 60mL | 250mL | 120mL | 60mL | | | | | | |
| SAMPLE ANALYSIS | | | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) 5.19.03 | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J00P23 | OTHER SOLID | 5.19.03 | 1150 | X | X | X | | | | | | |
| J00P24 | OTHER SOLID | 5.19.03 | 1200c | X | X | X | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | | |
|---|---|---|---|
| Relinquished By/Removed From: R Fahlberg | Date/Time: 5.19.03 1600 | Received By/Stored In: 3BC 3728 | Date/Time: 5.19.03 1600 |
| Relinquished By/Removed From: 3C 3728 | Date/Time: 52103 1300 | Received By/Stored In: SJ GALE | Date/Time: 52103 1300 |
| Relinquished By/Removed From: SJ GALE | Date/Time: 52103 1300 | Received By/Stored In: FED EX | Date/Time: |
| Relinquished By/Removed From: Fed Ex | Date/Time: 5.22.03 / 0900 | Received By/Stored In: D. Smith | Date/Time: 5.22.03 / 0900 |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

13

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | | B03-017-114 | Page 1 of 1 |
|---|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich | Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH | Price Code: 9C; Data Turnaround: 7 Days |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | | SAF No.: B03-017 | Air Quality: — |
| Ice Chest No.: ERC 99058 | Field Logbook No.: EL 1577 | COA: C17HXU671C | Method of Shipment: Fed EX | |
| Shipped To: TMA/RECRA | Offsite Property No.: A030236 | | Bill of Lading/Air Bill No.: SEE 08PC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | | | None | Cool 4C | Cool 4C | Cool 4C | Cool 4C | Cool 4C | | | | |
| Type of Container | | | aG | aG | aG | aG | aG | aG | | | | |
| No. of Container(s) | | | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| Volume | | | 60mL | 250mL | 120mL | 60mL | 120mL | 120mL | | | | |
| SAMPLE ANALYSIS | | | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | Sulfides - 9030 | Total Cyanide - 9010 | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J00P25 | OTHER SOLID | 5-19-03 | 1215 | X | X | X | | X | X | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| CHAIN OF POSSESSION | | Sign/Print Names | |
|---|---|---|---|
| Relinquished By/Removed From: R Fahlberg | Date/Time: 5-19-03 1215 | Received By/Stored In: ~~3R~~ 3-C 3728 | Date/Time: 5-19-03 1600 |
| Relinquished By/Removed From: 3C 3728 | Date/Time: 52103 1300 | Received By/Stored In: SJOALE | Date/Time: 52103 1300 |
| Relinquished By/Removed From: SJOALE | Date/Time: 52103 1300 | Received By/Stored In: FED EX | Date/Time: |
| Relinquished By/Removed From: Fed Ex | Date/Time: 5-22-03 10900 | Received By/Stored In: [signature] | Date/Time: 5-22-03 10900 |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |
| Relinquished By/Removed From: | Date/Time: | Received By/Stored In: | Date/Time: |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
|---|---|---|---|
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

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| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-115 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector: R Fahlberg | Company Contact: M Stankovich — Telephone No.: 531-7620 | Project Coordinator: KESSNER, JH | Price Code: 9C — Data Turnaround: 7 Days |
| Project Designation: Remaining Sites Confirmation Sampling-Other Solid | Sampling Location: 600-190 | SAF No.: B03-017 | Air Quality: — |
| Ice Chest No.: ERC 96 002 | Field Logbook No.: EL 1577 — COA: C17HXU671C | Method of Shipment: Fed EX | |
| Shipped To: TMA/RECRA | Offsite Property No.: A0 30236 | Bill of Lading/Air Bill No.: 5085 0377C | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-RAD Area, No Activity Report Required*

**Special Handling and/or Storage**

*Cool 4 c*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | Cool 4C | | | | | | | |
| Type of Container | aG | aG | aG | aG | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | 1 | | | | | | | |
| Volume | 60mL | 250mL | 120mL | 60mL | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | VOA - 8260A (TCL) | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J00P26 | OTHER SOLID | 5·19·03 | 1220 | X | X | X | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| R Fahlberg R.Fahlberg | 1600 5·19·03 | 3C 3728 | 1600 5·19·03 |
| 3C 3728 | 52103 1300 | SJ GALEA | 52103 1300 |
| SJ GALEA | 52103 1300 | FED EX | |
| Fed Ex | 5·22·03 1000 | D Smith | 5·22·03 0900 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

**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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

| Bechtel Hanford Inc. | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | B03-017-120 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>R Fahlberg | Company Contact<br>M Stankovich | Telephone No.<br>531-7620 | Project Coordinator<br>KESSNER, JH |
| Project Designation<br>Remaining Sites Confirmation Sampling-Other Solid | Sampling Location<br>600-190 | | SAF No.<br>B03-017 |
| Ice Chest No.<br>ER C 99 058 | Field Logbook No.<br>EL 1577 | COA<br>C17HXU671C | Method of Shipment<br>Fed EX |
| Shipped To<br>TMA/RECRA | Offsite Property No.<br>A030 236 | | Bill of Lading/Air Bill No.<br>SEE OSPC |

Price Code 9C

Air Quality

Data Turnaround 7 Days

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*Non-Rad Area. No Activity Report Rquired*

**Special Handling and/or Storage**

*cool 4c*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | None | Cool 4C | Cool 4C | | | | | | | | | |
| Type of Container | aG | aG | aG | | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | | |
| Volume | 60mL | 250mL | 120mL | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | PCBs - 8082; Pesticides - 8081; Chloro-Herbicides - EPA8151 | Semi-VOA - 8270A (TCL) | | | | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J00P55 | OTHER SOLID | 5·19·03 | 1155 | X | X | X | | | | | | |
| J00P56 | OTHER SOLID | 5·19·03 | 1205 | X | X | X | | | | | | |
| J00P57 | OTHER SOLID | 5·19·02 | 1210 | X | X | X | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Date/Time | Sign/Print Names | Date/Time |
|---|---|---|---|
| Relinquished By/Removed From<br>R. Fahlberg R. Fahlberg | 1600<br>5·19·03 | Received By/Stored In<br>3C 3728 | 1600<br>5·19·03 |
| Relinquished By/Removed From<br>3C 3728 | 52103 1300 | Received By/Stored In<br>S. GALE | 52103 1300 |
| Relinquished By/Removed From<br>S. GALE | 52103 1300 | Received By/Stored In<br>FED EX | |
| Relinquished By/Removed From<br>Fed Ex | 5-22-03/0900 | Received By/Stored In<br>[illegible] | 5-22-03/0900 |
| Relinquished By/Removed From | | Received By/Stored In | |
| Relinquished By/Removed From | | Received By/Stored In | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/21/03

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 |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

BHI-EE-011 (03/01/2002)

# LIONVILLE LABORATORY INCORPORATED
## SAMPLE RECEIPT CHECKLIST

LIENT: TNU Hanford

rchase Order/Project:

DATE: 5-22-03

AF# / SOW# / Release #: B03-017

aboratory SDG #: Q3C05L473

OTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

| | | | | |
|---|---|---|---|---|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 3. Airbill # recorded? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 5. Sample containers are intact? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 7. All samples on coc received? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 8. All sample label information matches coc? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |
| 12. coc signed and dated? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 13. coc will be faxed or emailed to client? | ☑ Yes | ☐ No | ☐ N/A | ☐ see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | ☐ Yes | ☐ No | ☑ N/A | ☐ see Comment # |

Cooler # / temp (°C) and Comments:

# ERC-99-058 / 1.2°C

# ERC 96-002 / 0.3°C

# ERC96-

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

# SAF-B03-017
# Remaining Sites Confirmation Sampling-Other Solid
# FINAL DATA PACKAGE

**E:MAIL RESULTS TO:**

Ella Feist ___N/A___
INITIAL/DATE

Mike Stankovich ___N/A___
INITIAL/DATE

**MAIL COMPLETE COPY OF DATA PACKAGE TO:**

| | | |
|---|---|---|
| Ella Feist | H9-01 | KD 6.11.03 INITIAL/DATE |
| Mike Stankovich | H9-02 | KD 6.11.03 INITIAL/DATE |
| Bob Hynes | H0-18 | KD 6.11.03 INITIAL/DATE |
| Jeanette Duncan | H9-02 | KD 6.11.03 INITIAL/DATE |

**COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE COVER SHEET)**

SDG ___H2235 SAF-B03-017

Rad only X Chem only Rad & Chem

X Complete Partial

**Add-on TPH**

**Sample Location/Waste Site: 600-131**

# Data Package

| Sample | SAF | SDG | Lab | Lab Received Date | Class | Final DP Received | Status |
|---|---|---|---|---|---|---|---|
| J00NC4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NC4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NC4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NC4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENCHEM | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | HERB | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NC5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENCHEM | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | HERB | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NF2 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |

| Sample | SAF | SDG | Lab | Lab Received Date | Class | Final DP Received | Status |
|---|---|---|---|---|---|---|---|
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENCHEM | 5/28/2003 | Returned |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENORG | 6/5/2003 | Returned - SDR |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | HERB | 5/28/2003 | Returned |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NF3 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENCHEM | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENORG | 6/5/2003 | Returned - SDR |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | HERB | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NF4 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENCHEM | 5/28/2003 | Returned |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | GENORG | 6/5/2003 | Returned - SDR |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | HERB | 5/28/2003 | Returned |

| Sample | SAF | SDG | Lab | Lab Received Date | Class | Final DP Received | Status |
|---|---|---|---|---|---|---|---|
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NF5 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |
| J00NF6 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALMULT | 5/28/2003 | Returned |
| J00NF6 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | METALSING | 5/28/2003 | Returned |
| J00NF6 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | PEST/PCB | 5/28/2003 | Returned |
| J00NF6 | B03-017 | H2214 | TMA | 5/14/2003 9:35:00 AM | SVOA | 5/28/2003 | Returned |

LIONVILLE LABORATORY INC.

4 June 2003

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

**Subject: Contract No. 630**
**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 # | 0305L500 |
| SDG # | H2214 Addon |
| SAF # | B03-017 |
| Date Received | 5-28-03 |
| # Samples | 3 |
| Matrix | Other Solid |
| Volatiles | |
| Semivolatiles | |
| Pest/PCB | X |
| DRO/KRO/GRO | |
| GC Alcohols | |
| Herbicides | |
| Metals | |
| 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

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

RECEIVED
JUN 2003

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

RECEIVED
JUN 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B03-017 H2214

DATE RECEIVED: 05/28/03 LVL LOT # :0305L500

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP # | COLLECTION | EXTR/PREP | ANALYSIS |
|---|---|---|---|---|---|---|
| J00NF3 | | | | | | |
| % SOLIDS | 001 | SO | 03L%S066 | 05/12/03 | 05/15/03 | 05/16/03 |
| % SOLIDS | 001 REP | SO | 03L%S066 | 05/12/03 | 05/15/03 | 05/16/03 |
| PETROLEUM HYDROCARBO | 001 | SO | 03LHC030 | 05/12/03 | 05/30/03 | 05/30/03 |
| J00NF4 | | | | | | |
| % SOLIDS | 002 | SO | 03L%S066 | 05/12/03 | 05/15/03 | 05/16/03 |
| PETROLEUM HYDROCARBO | 002 | SO | 03LHC030 | 05/12/03 | 05/30/03 | 05/30/03 |
| J00NF5 | | | | | | |
| % SOLIDS | 003 | SO | 03L%S066 | 05/12/03 | 05/15/03 | 05/16/03 |
| PETROLEUM HYDROCARBO | 003 | SO | 03LHC030 | 05/12/03 | 05/30/03 | 05/30/03 |
| PETROLEUM HYDROCARBO | 003 MS | SO | 03LHC030 | 05/12/03 | 05/30/03 | 05/30/03 |
| PETROLEUM HYDROCARBO | 003 MSD | SO | 03LHC030 | 05/12/03 | 05/30/03 | 05/30/03 |

LAB QC:

| | | | | | | |
|---|---|---|---|---|---|---|
| PETROLEUM HYDROCARBO | LC1 BS | S | 03LHC030 | N/A | 05/30/03 | 05/30/03 |
| PETROLEUM HYDROCARBO | MB1 | S | 03LHC030 | N/A | 05/30/03 | 05/30/03 |

LIONVILLE LABORATORY INC.

## Analytical Report

**Client:** TNU-HANFORD B03-017 H2214
**LVL#:** 0305L500

**W.O.#:** 11343-606-001-9999-00
**Date Received:** 05-28-03

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 solid samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blank for Petroleum Hydrocarbons (PHC) was within the method criteria.

6. The Laboratory Control Sample (LCS) for PHC was within the laboratory control limits.

7. The matrix spike recoveries for PHC were within the 75-125% control limits. The matrix spike duplicate for PHC was within the 20% Relative Percent Difference (RPD) control limit.

8. The replicate analysis for Percent Solids was within the 20% RPD control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

06-03-03
Date

njp\i05- 500

The results presented in this report relate to the analytical testing and conditions of the samples upon 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 10 pages.



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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

| | ASTM | SW846 | OTHER |
|---|---|---|---|
| % Ash | __ D2216-80 | | |
| % Moisture | __ D2216-80 | | __ ILMO4.0 (e) |
| % Solids | ✓ D2216-80 | | __ ILMO4.0 (e) |
| % Volatile Solids | __ D2216-80 | | |
| ASTM Extraction in Water | __ D3987-81/85 | | |
| BTU | __ D240-87 | | |
| CEC | | __ 9081 | __ c |
| Chromium VI | | __ 3060A/7196A | |
| Corrosivity ___ by coupon ___ by pH | | __ 1110(mod) __ 9045C | |
| Cyanide, Total | | __ 9010B | __ ILMO4.0 (e) |
| Cyanide, Reactive | | __ Section 7.3/9014 | |
| Halides, Extractable Organic | | __ 9020B | __ EPA 600/4/84-008 |
| Halides, Total | | __ 9020B | __ EPA 600/4/84-008 |
| EP Toxicity | | __ 1310A | |
| Flash Point | | __ 1010 | |
| Ignitability | | __ 1010 | |
| Oil & Grease | | __ 9071A | |
| Carbon, Total Organic | | __ 9060 | __ Lloyd Kahn (mod) |
| Oxygen Bomb Prep for Anions | __ D240-87(mod) | __ 5050 | |
| Petroleum Hydrocarbons, Total Recoverable | | ✓ 9071 | ✓ EPA 418.1 (mod.) |
| pH, Soil | | __ 9045C | |
| Sulfide, Reactive | | __ Section 7.3/9030B | |
| Sulfide | | __ 9030B(mod) | |
| Specific Gravity | __ D1429-76C/ | __ D5057-90 | |
| Sulfur, Total | | __ 9056 | |
| Synthetic Preparation Leach | | __ 1312 | |
| Paint Filter | | __ 9095A | |
| **Other:** | **Method:** | | |
| **Other:** | **Method** | | |

L-WI-034/B-01/01

Lionville Laboratory Incorporated

# 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
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

## ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2214

LVL LOT #: 0305L500

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|
| -001 | J00NF3 | % Solids | 94.6 | % | 0.01 | 1.0 |
| | | Petroleum Hydrocarbons | 48.3 | MG/KG | 3.5 | 1.0 |
| -002 | J00NF4 | % Solids | 96.3 | % | 0.01 | 1.0 |
| | | Petroleum Hydrocarbons | 3700 | MG/KG | 86.6 | 25.0 |
| -003 | J00NF5 | % Solids | 94.4 | % | 0.01 | 1.0 |
| | | Petroleum Hydrocarbons | 42.4 | MG/KG | 3.5 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/30/03

CLIENT: TNUHANFORD B03-017 H2214 LVL LOT #: 0305L500

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | RESULT | | UNITS | REPORTING LIMIT | DILUTION FACTOR |
|---|---|---|---|---|---|---|---|
| BLANK10 | 03LHC030-MB1 | Petroleum Hydrocarbons | 3.3 | u | MG/KG | 3.3 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2214 LVL LOT #: 0305L500

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKED SAMPLE | INITIAL RESULT | SPIKED AMOUNT | %RECOV | DILUTION FACTOR(SPK) |
|---|---|---|---|---|---|---|---|
| -003 | J00NF5 | Petroleum Hydrocarbons | 179 | 42.4 | 148 | 92.5 | 1.0 |
| | | Petroleum Hydrocarbons | 177 | 42.4 | 148 | 91.0 | 1.0 |
| LCS10 | 03LHC030-LC1 | Petroleum Hydrocarbons | 147 | 3.3 u | 140 | 104.7 | 1.0 |

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2214 LVL LOT #: 0305L500

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | SPIKE#1 %RECOV | SPIKE#2 %RECOV | %DIFF |
|---|---|---|---|---|---|
| -003 | J00NF5 | Petroleum Hydrocarbons | 92.5 | 91.0 | 1.6 |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/30/03

CLIENT: TNUHANFORD B03-017 H2214 LVL LOT #: 0305L500

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE | INITIAL RESULT | REPLICATE | RPD | DILUTION FACTOR(REP) |
|---|---|---|---|---|---|---|
| -001REP | J00NF3 | % Solids | 94.6 | 94.7 | 0.18 | 1.0 |

| Lionville Laboratory Use Only |
|---|
| 0305L500 |

# Custody Transfer Record/Lab Work Request

Page 1 of 1

**FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS**

LVLI — LIONVILLE LABORATORY INC.

Client: TNU-Hanford B03-017

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC  Del: STD  TAT: 3 days

Date Rec'd: 5-28-03  Date Due: 5-31-03

| Refrigerator # | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| #/Type Container | Liquid | | | | | | | | | | | | 2 | | | | |
| | Solid | | | | | | | | | | | | AG | | | | |
| Volume | Liquid | | | | | | | | | | | | | | | | |
| | Solid | | | | | | | | | | | | 250 | | | | |
| Preservatives | | | | | | | | | | | | | | | | | |
| ANALYSES REQUESTED → | | ORGANIC | | | | | | | INORG | | | | | | | | |
| | | VOA | BNA | Pest/PCB | Herb | | | | Metal | CN | | | TPH | | | | |
| | | Lionville Laboratory Use Only | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | ZPHC | | | | |

MATRIX CODES:
S - 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 | J00NF3 | | | SO | 5-12-03 | 1225 | | | | | | | | | | | ✓ | | | | |
| 002 | 4 | | | | | 1330 | | | | | | | | | | | ✓ | | | | |
| 003 | 5 | | | | | 1225 | | | | | | | | | | | ✓ | | | | |

Special Instructions: SAF # B03-017
Run Matrix
Relog of 0305L402-004
-005
-006

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

**Lionville Laboratory Use Only**

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

N/A

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ____ °C

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

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

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: