0077969

SAF-RC-020
100-BC Burial Grounds –
Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Kathy Wendt (2) H4-21

COMMENTS:

SDG K1137 SAF-RC-020

Waste Site: 100-B-19

RECEIVED
JUN 2 3 2008
EDMC

Date: 10 June 2008
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-BC Burial Grounds – Soil Full Protocol – Waste Site 100-B-19
Subject: Inorganics - Data Package No. K1137-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K1137 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J16B84	2/28/08	Soil	C	See note 1
J16B85	2/28/08	Soil	C	See note 1
J16B86	2/28/08	Soil	C	See note 1
J16B87	2/28/08	Soil	C	See note 1
J16B88	2/28/08	Soil	C	See note 1
J16B89	2/28/08	Soil	C	See note 1
J16B90	2/28/08	Soil	C	See note 1
J16B91	2/28/08	Soil	C	See note 1
J16B92	2/28/08	Soil	C	See note 1
J16B93	2/28/08	Soil	C	See note 1
J16B94	2/28/08	Soil	C	See note 1

1 - ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "UJ". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to the lack of a matrix spike analysis, all metal results (except mercury) in sample J16B87 were qualified as estimates and flagged "J".

Due to matrix spike recoveries outside QC limits, all antimony (47%) results (except J16B87) were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits (37.7% & 37.6%), all silicon results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (45.9%), all silicon results (except J16B87) were qualified as estimates and flagged "J".

Due to the lack of a laboratory duplicate analysis, all metal results (except mercury) in sample J16B87 were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J16B86/J16B94) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. K1137 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not

rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the lack of a matrix spike analysis, all metal results (except mercury) in sample J16B87 were qualified as estimates and flagged "J".
- Due to matrix spike recoveries outside QC limits, all antimony (47%) results (except J16B87) were qualified as estimates and flagged "J".
- Due to LCS recoveries outside QC limits (37.7% & 37.6%), all silicon results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (45.9%), all silicon results (except J16B87) were qualified as estimates and flagged "J".
- Due to the lack of a laboratory duplicate analysis, all metal results (except mercury) in sample J16B87 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services.*

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SDG: K1137	REVIEWER: ELR	Project: 100-B-19	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All (except mercury)	J	J16B87	No MS or duplicate analysis
Antimony	J	All (except J16B87)	MS recovery
Silicon	J	All	LCS recovery
Silicon	J	All (except J16B87)	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16B84	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	6740	MG/KG	3.6	1.0
		Arsenic, Total	3.9	MG/KG	0.45	1.0
		Boron, Total	1.9	MG/KG	0.45	1.0
		Barium, Total	58.2	MG/KG	0.09	1.0
		Beryllium, Total	0.27	MG/KG	0.05	1.0
		Calcium, Total	2700	MG/KG	3.6	1.0
		Cadmium, Total	0.14	MG/KG	0.05	1.0
		Cobalt, Total	5.5	MG/KG	0.18	1.0
		Chromium, Total	10.8	MG/KG	0.18	1.0
		Copper, Total	12.2	MG/KG	0.18	1.0
		Iron, Total	16100	MG/KG	4.1	1.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	1670	MG/KG	3.6	1.0
		Magnesium, Total	3340	MG/KG	2.3	1.0
		Manganese, Total	259	MG/KG	0.04	1.0
		Molybdenum, Total	0.34	MG/KG	0.27	1.0
		Sodium, Total	129	MG/KG	1.8	1.0
		Nickel, Total	10.2	MG/KG	0.18	1.0
		Lead, Total	4.3	MG/KG	0.27	1.0
		Antimony, Total	0.27 u J	MG/KG	0.27	1.0
		Selenium, Total	0.54 u	MG/KG	0.54	1.0
		Silicon, Total	339 J	MG/KG	3.6	1.0
		Vanadium, Total	38.7	MG/KG	0.13	1.0
		Zinc, Total	30.3	MG/KG	0.54	1.0

8/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
002	J16B85	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Aluminum, Total	5790	MG/KG	3.9	1.0
		Arsenic, Total	2.3	MG/KG	0.48	1.0
		Boron, Total	2.6	MG/KG	0.48	1.0
		Barium, Total	55.5	MG/KG	0.1	1.0
		Beryllium, Total	0.29	MG/KG	0.05	1.0
		Calcium, Total	3670	MG/KG	3.9	1.0
		Cadmium, Total	0.11	MG/KG	0.05	1.0
		Cobalt, Total	5.3	MG/KG	0.19	1.0
		Chromium, Total	9.8	MG/KG	0.19	1.0
		Copper, Total	11.1	MG/KG	0.19	1.0
		Iron, Total	15800	MG/KG	4.4	1.0
		Mercury, Total	0.01	MG/KG	0.009	1.0
		Potassium, Total	1260	MG/KG	3.9	1.0
		Magnesium, Total	3220	MG/KG	2.4	1.0
		Manganese, Total	262	MG/KG	0.04	1.0
		Molybdenum, Total	0.30	MG/KG	0.29	1.0
		Sodium, Total	125	MG/KG	1.9	1.0
		Nickel, Total	8.5	MG/KG	0.19	1.0
		Lead, Total	11.0	MG/KG	0.29	1.0
		Antimony, Total	0.29 u J	MG/KG	0.29	1.0
		Selenium, Total	0.58 u	MG/KG	0.58	1.0
		Silicon, Total	350 J	MG/KG	3.9	1.0
		Vanadium, Total	38.2	MG/KG	0.14	1.0
		Zinc, Total	33.4	MG/KG	0.58	1.0

6/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
003	J16B86	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	6360	MG/KG	4.1	1.0
		Arsenic, Total	2.5	MG/KG	0.51	1.0
		Boron, Total	2.6	MG/KG	0.51	1.0
		Barium, Total	67.4	MG/KG	0.10	1.0
		Beryllium, Total	0.37	MG/KG	0.05	1.0
		Calcium, Total	3660	MG/KG	4.1	1.0
		Cadmium, Total	0.14	MG/KG	0.05	1.0
		Cobalt, Total	6.0	MG/KG	0.20	1.0
		Chromium, Total	12.0	MG/KG	0.20	1.0
		Copper, Total	12.3	MG/KG	0.20	1.0
		Iron, Total	18000	MG/KG	4.6	1.0
		Mercury, Total	0.01	MG/KG	0.01	1.0
		Potassium, Total	1410	MG/KG	4.1	1.0
		Magnesium, Total	3490	MG/KG	2.6	1.0
		Manganese, Total	292	MG/KG	0.04	1.0
		Molybdenum, Total	0.39	MG/KG	0.31	1.0
		Sodium, Total	138	MG/KG	2.0	1.0
		Nickel, Total	9.9	MG/KG	0.20	1.0
		Lead, Total	14.8	MG/KG	0.31	1.0
		Antimony, Total	0.31 u J	MG/KG	0.31	1.0
		Selenium, Total	0.61 u	MG/KG	0.61	1.0
		Silicon, Total	617 J	MG/KG	4.1	1.0
		Vanadium, Total	42.8	MG/KG	0.14	1.0
		Zinc, Total	40.4	MG/KG	0.61	1.0

4/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J16B87	Silver, Total	0.1 u J	MG/KG	0.1	1.0
		Aluminum, Total	7330	MG/KG	3.9	1.0
		Arsenic, Total	2.9	MG/KG	0.48	1.0
		Boron, Total	2.0	MG/KG	0.48	1.0
		Barium, Total	55.7	MG/KG	0.1	1.0
		Beryllium, Total	0.42	MG/KG	0.05	1.0
		Calcium, Total	4120	MG/KG	3.9	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	7.5	MG/KG	0.19	1.0
		Chromium, Total	9.8	MG/KG	0.19	1.0
		Copper, Total	13.9	MG/KG	0.19	1.0
		Iron, Total	21700	MG/KG	4.4	1.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	1230 J	MG/KG	3.9	1.0
		Magnesium, Total	4300	MG/KG	2.4	1.0
		Manganese, Total	333	MG/KG	0.04	1.0
		Molybdenum, Total	0.31	MG/KG	0.29	1.0
		Sodium, Total	158	MG/KG	1.9	1.0
		Nickel, Total	12.2	MG/KG	0.19	1.0
		Lead, Total	5.5	MG/KG	0.29	1.0
		Antimony, Total	0.29 u	MG/KG	0.29	1.0
		Selenium, Total	0.58 u	MG/KG	0.58	1.0
		Silicon, Total	711 J	MG/KG	3.9	1.0
		Vanadium, Total	50.0 J	MG/KG	0.14	1.0
		Zinc, Total	40.8 J	MG/KG	0.58	1.0

6/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

:LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
·005	J16B88	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	7490	MG/KG	3.6	1.0
		Arsenic, Total	3.5	MG/KG	0.45	1.0
		Boron, Total	2.7	MG/KG	0.45	1.0
		Barium, Total	67.7	MG/KG	0.09	1.0
		Beryllium, Total	0.40	MG/KG	0.05	1.0
		Calcium, Total	5240	MG/KG	3.6	1.0
		Cadmium, Total	0.12	MG/KG	0.05	1.0
		Cobalt, Total	7.1	MG/KG	0.18	1.0
		Chromium, Total	11.5	MG/KG	0.18	1.0
		Copper, Total	18.2	MG/KG	0.18	1.0
		Iron, Total	20600	MG/KG	4.1	1.0
		Mercury, Total	0.01	MG/KG	0.009	1.0
		Potassium, Total	1560	MG/KG	3.6	1.0
		Magnesium, Total	4270	MG/KG	2.3	1.0
		Manganese, Total	336	MG/KG	0.04	1.0
		Molybdenum, Total	0.32	MG/KG	0.27	1.0
		Sodium, Total	157	MG/KG	1.8	1.0
		Nickel, Total	11.9	MG/KG	0.18	1.0
		Lead, Total	8.8	MG/KG	0.27	1.0
		Antimony, Total	0.27 u J	MG/KG	0.27	1.0
		Selenium, Total	0.54 u	MG/KG	0.54	1.0
		Silicon, Total	384 J	MG/KG	3.6	1.0
		Vanadium, Total	42.1	MG/KG	0.13	1.0
		Zinc, Total	40.7	MG/KG	0.54	1.0

6/9/08

Lionville Laboratory, Inc.

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CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J16B89	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Aluminum, Total	6990	MG/KG	3.9	1.0
		Arsenic, Total	3.4	MG/KG	0.49	1.0
		Boron, Total	2.0	MG/KG	0.49	1.0
		Barium, Total	59.2	MG/KG	0.1	1.0
		Beryllium, Total	0.39	MG/KG	0.05	1.0
		Calcium, Total	6220	MG/KG	3.9	1.0
		Cadmium, Total	0.09	MG/KG	0.05	1.0
		Cobalt, Total	6.8	MG/KG	0.20	1.0
		Chromium, Total	10.2	MG/KG	0.20	1.0
		Copper, Total	15.6	MG/KG	0.20	1.0
		Iron, Total	18600	MG/KG	4.4	1.0
		Mercury, Total	0.01	MG/KG	0.009	1.0
		Potassium, Total	1340	MG/KG	3.9	1.0
		Magnesium, Total	4100	MG/KG	2.4	1.0
		Manganese, Total	310	MG/KG	0.04	1.0
		Molybdenum, Total	0.29 u	MG/KG	0.29	1.0
		Sodium, Total	154	MG/KG	2.0	1.0
		Nickel, Total	11.0	MG/KG	0.20	1.0
		Lead, Total	6.8	MG/KG	0.29	1.0
		Antimony, Total	0.29 u J	MG/KG	0.29	1.0
		Selenium, Total	0.59 u	MG/KG	0.59	1.0
		Silicon, Total	351 J	MG/KG	3.9	1.0
		Vanadium, Total	41.5	MG/KG	0.14	1.0
		Zinc, Total	37.0	MG/KG	0.59	1.0

6/9/08

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J16B90	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	6010	MG/KG	3.3	1.0
		Arsenic, Total	4.1	MG/KG	0.42	1.0
		Boron, Total	2.3	MG/KG	0.42	1.0
		Barium, Total	62.8	MG/KG	0.08	1.0
		Beryllium, Total	0.36	MG/KG	0.04	1.0
		Calcium, Total	6210	MG/KG	3.3	1.0
		Cadmium, Total	0.1	MG/KG	0.04	1.0
		Cobalt, Total	6.1	MG/KG	0.17	1.0
		Chromium, Total	10.0	MG/KG	0.17	1.0
		Copper, Total	13.0	MG/KG	0.17	1.0
		Iron, Total	17200	MG/KG	3.7	1.0
		Mercury, Total	0.02	MG/KG	0.009	1.0
		Potassium, Total	1340	MG/KG	3.3	1.0
		Magnesium, Total	3900	MG/KG	2.1	1.0
		Manganese, Total	284	MG/KG	0.03	1.0
		Molybdenum, Total	0.25	MG/KG	0.25	1.0
		Sodium, Total	141	MG/KG	1.7	1.0
		Nickel, Total	9.5	MG/KG	0.17	1.0
		Lead, Total	7.9	MG/KG	0.25	1.0
		Antimony, Total	0.25 uJ	MG/KG	0.25	1.0
		Selenium, Total	0.50 u	MG/KG	0.50	1.0
		Silicon, Total	314 J	MG/KG	3.3	1.0
		Vanadium, Total	39.2	MG/KG	0.12	1.0
		Zinc, Total	43.2	MG/KG	0.50	1.0

6/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
008	J16891	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Aluminum, Total	7990	MG/KG	3.9	1.0
		Arsenic, Total	5.1	MG/KG	0.48	1.0
		Boron, Total	2.1	MG/KG	0.48	1.0
		Barium, Total	64.3	MG/KG	0.1	1.0
		Beryllium, Total	0.54	MG/KG	0.05	1.0
		Calcium, Total	13600	MG/KG	3.9	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	7.8	MG/KG	0.19	1.0
		Chromium, Total	11.7	MG/KG	0.19	1.0
		Copper, Total	19.1	MG/KG	0.19	1.0
		Iron, Total	21400	MG/KG	4.4	1.0
		Mercury, Total	0.01	MG/KG	0.008	1.0
		Potassium, Total	1400	MG/KG	3.9	1.0
		Magnesium, Total	6220	MG/KG	2.4	1.0
		Manganese, Total	338	MG/KG	0.04	1.0
		Molybdenum, Total	0.34	MG/KG	0.29	1.0
		Sodium, Total	207	MG/KG	1.9	1.0
		Nickel, Total	14.4	MG/KG	0.19	1.0
		Lead, Total	7.4	MG/KG	0.29	1.0
		Antimony, Total	0.29 u J	MG/KG	0.29	1.0
		Selenium, Total	0.58 u	MG/KG	0.58	1.0
		Silicon, Total	351 J	MG/KG	3.9	1.0
		Vanadium, Total	48.0	MG/KG	0.14	1.0
		Zinc, Total	46.7	MG/KG	0.58	1.0

6/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	J16B92	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	6980	MG/KG	3.7	1.0
		Arsenic, Total	4.3	MG/KG	0.46	1.0
		Boron, Total	2.0	MG/KG	0.46	1.0
		Barium, Total	66.7	MG/KG	0.09	1.0
		Beryllium, Total	0.46	MG/KG	0.05	1.0
		Calcium, Total	14300	MG/KG	3.7	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	6.3	MG/KG	0.18	1.0
		Chromium, Total	11.7	MG/KG	0.18	1.0
		Copper, Total	15.0	MG/KG	0.18	1.0
		Iron, Total	18600	MG/KG	4.1	1.0
		Mercury, Total	0.01	MG/KG	0.01	1.0
		Potassium, Total	1150	MG/KG	3.7	1.0
		Magnesium, Total	4630	MG/KG	2.3	1.0
		Manganese, Total	291	MG/KG	0.04	1.0
		Molybdenum, Total	0.37	MG/KG	0.28	1.0
		Sodium, Total	185	MG/KG	1.8	1.0
		Nickel, Total	12.4	MG/KG	0.18	1.0
		Lead, Total	5.7	MG/KG	0.28	1.0
		Antimony, Total	0.28 u J	MG/KG	0.28	1.0
		Selenium, Total	0.55 u	MG/KG	0.55	1.0
		Silicon, Total	387 J	MG/KG	3.7	1.0
		Vanadium, Total	44.6	MG/KG	0.13	1.0
		Zinc, Total	38.7	MG/KG	0.55	1.0

4/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
010	J16B93	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	6820	MG/KG	3.6	1.0
		Arsenic, Total	3.5	MG/KG	0.46	1.0
		Boron, Total	2.0	MG/KG	0.46	1.0
		Barium, Total	70.8	MG/KG	0.09	1.0
		Beryllium, Total	0.43	MG/KG	0.05	1.0
		Calcium, Total	5960	MG/KG	3.6	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	6.1	MG/KG	0.18	1.0
		Chromium, Total	12.1	MG/KG	0.18	1.0
		Copper, Total	13.8	MG/KG	0.18	1.0
		Iron, Total	16800	MG/KG	4.1	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	1160	MG/KG	3.6	1.0
		Magnesium, Total	3980	MG/KG	2.3	1.0
		Manganese, Total	279	MG/KG	0.04	1.0
		Molybdenum, Total	0.34	MG/KG	0.27	1.0
		Sodium, Total	161	MG/KG	1.8	1.0
		Nickel, Total	12.3	MG/KG	0.18	1.0
		Lead, Total	5.9	MG/KG	0.27	1.0
		Antimony, Total	0.27 u J	MG/KG	0.27	1.0
		Selenium, Total	0.55 u	MG/KG	0.55	1.0
		Silicon, Total	365 J	MG/KG	3.6	1.0
		Vanadium, Total	37.1	MG/KG	0.13	1.0
		Zinc, Total	35.6	MG/KG	0.55	1.0

6/9/08

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J16B94	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	6460	MG/KG	3.6	1.0
		Arsenic, Total	2.7	MG/KG	0.46	1.0
		Boron, Total	2.5	MG/KG	0.46	1.0
		Barium, Total	67.0	MG/KG	0.09	1.0
		Beryllium, Total	0.48	MG/KG	0.05	1.0
		Calcium, Total	4140	MG/KG	3.6	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	6.0	MG/KG	0.18	1.0
		Chromium, Total	11.9	MG/KG	0.18	1.0
		Copper, Total	21.8	MG/KG	0.18	1.0
		Iron, Total	17900	MG/KG	4.1	1.0
		Mercury, Total	0.02	MG/KG	0.009	1.0
		Potassium, Total	1450	MG/KG	3.6	1.0
		Magnesium, Total	3580	MG/KG	2.3	1.0
		Manganese, Total	301	MG/KG	0.04	1.0
		Molybdenum, Total	0.44	MG/KG	0.27	1.0
		Sodium, Total	134	MG/KG	1.8	1.0
		Nickel, Total	10.3	MG/KG	0.18	1.0
		Lead, Total	10.9	MG/KG	0.27	1.0
		Antimony, Total	0.27 u J	MG/KG	0.27	1.0
		Selenium, Total	0.55 u	MG/KG	0.55	1.0
		Silicon, Total	429 J	MG/KG	3.6	1.0
		Vanadium, Total	42.2	MG/KG	0.13	1.0
		Zinc, Total	43.0	MG/KG	0.55	1.0

4/4/08

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-020
LVL#: 0803L693
SDG/SAF#: K1137/RC-020

W.O.#: 11343-606-001-9999-00
Date Received: 03-04-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analyses of 11 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were rerun on a different instrument for Aluminum and Sodium due to sample matrix.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the ending CCV for Sodium in file TA0313A. All samples were rerun for Sodium in file PS0320B.

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

6. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of both LCS's for Silicon at 37.7% and 37.6%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low for Silicon.

9. The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits.

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 46 pages.

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

Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16B84	Aluminum	42,000	98.2
	Iron	42,000	112.1
	Antimony	100	109.9

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

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

3/26/08
Date

jjw/m03-693

LVLI
LIONVILLE LABORATORY INC.

C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	Price Code 8L 21 days
Project Designation 100-BC Burial Grounds - Soil Full Protocol	Sampling Location 100-B-19	SAF No. RC-020	
Ice Chest No. ERC-02-505	Field Logbook No. EFL1173-14 / COA R10B192000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES/LIONVILLE	Offsite Property No. A080192	Bill of Lading/Air Bill No. see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None Cool 4°C

Preservation	None	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	250mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									
Sample No.	Matrix *	Sample Date	Sample Time								
J16B84	SOIL	2.28.08	1330	✓	✓						
J16B85	SOIL		1340	✓	✓						
J16B86	SOIL		1350	✓	✓						
J16B87	SOIL		1400	✓	✓						
J16B88	SOIL	2.28.08	1407	✓	✓						

000024

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Paul Wilson	2.28.08 1520	C. Martinez/C. Martinez	02/28/08 1520
Relinquished By/Removed From	C. Martinez/C. Martinez	02/28/08 1705	1060 Battelle 2B	02/28/08 1705
Relinquished By/Removed From	1060 Battelle/2B	3/3/08 0930	M Stankovich	3/3/08 0930
Relinquished By/Removed From	M Stankovich	3/3/08 1500	Fed Ex	
Relinquished By/Removed From	Fed Ex	3-4-08 1010		3-4-08 1010
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

None

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

Matrix *

S=Soil
SE=Sediment
SO=Solid
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

WCH-EE-011

000000043

C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	Price Code: 8L / Data Turnaround: 21 days
Project Designation: 100-BC Burial Grounds - Soil Full Protocol	Sampling Location: 100-B-19	SAF No.: RC-020	
Ice Chest No.: FRC-02-505	Field Logbook No.: EFL1173-14 / COA: R10B192000	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A080192	Bill of Lading/Air Bill No.: see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None Cool 4°C

Preservation	None	Cool 4C										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	250mL	125mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196										

Sample No.	Matrix *	Sample Date	Sample Time										
J16B89	SOIL	2-28-08	1420	✓	✓								
J16B90	SOIL		1430	✓	✓								
J16B91	SOIL		1440	✓	✓								
J16B92	SOIL		1455	✓	✓								
J16B93	SOIL	2-28-08	1505	✓	✓								

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Paul Wilson / [signature] Date/Time: 1020 2/28/08	Received By/Stored In: c.martinez / c.martinez Date/Time: 1520 02/28/08	
Relinquished By/Removed From: c.martinez / c.martinez Date/Time: 1705 02/28/08	Received By/Stored In: 1060 Battelle 2B Date/Time: 1705 02/28/08	
Relinquished By/Removed From: 1060/2B 3/3/08 Date/Time: 0930	Received By/Stored In: [signature] MStankovich Date/Time: 3/3/08 0930	
Relinquished By/Removed From: [signature] MStankovich 3/3/08 Date/Time: 1500	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex 3-4-08 Date/Time: 1010	Received By/Stored In: [signature] Date/Time: 3-4-08 1010	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

SPECIAL INSTRUCTIONS

None

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

Matrix *

S=Soil
SE=Sediment
SO=Solid
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

VCH-EE-011

000025

000000044

C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	Price Code: 8L / Data Turnaround: 21 days
Project Designation: 100-BC Burial Grounds - Soil Full Protocol	Sampling Location: 100-B-19	SAF No.: RC-020	
ce Chest No.: ERC-02-505	Field Logbook No.: EFL1173-14 / COA: R10B192000	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A080192	Bill of Lading/Air Bill No.: see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None Cool 4°C

000026

Preservation	None	Cool 4C										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	250mL	125mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196										
Sample No. / Matrix * / Sample Date / Sample Time												
16B94 / SOIL / 2.28.08 / 1352	✓	✓										
16B95 / SOIL												
16B96 / SOIL												
16B97 / SOIL												
16B98 / SOIL												

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Paul Wilson	2.28.08 1620	02/28/08 Charlene Martinez/Charlene Martinez	1520
Relinquished By/Removed From: C Martinez/C Martinez	02/28/08 1705	1060 Battelle 2B	02/28/08 1705
Relinquished By/Removed From: 060/2B	3/3/08 0930	MStankovich	3/3/08 0930
Relinquished By/Removed From: MStankovich	3/3/08 1800	FED EX	
Relinquished By/Removed From: FED EX	3-4-08 1010		3-4-08 1010
Relinquished By/Removed From		Received By/Stored In.	

SPECIAL INSTRUCTIONS

None

(1) ICP Metals - 6010TR (Client List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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

Matrix *

S=Soil
SE=Sediment
SO=Solid
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

CH-EE-011

000000045

RECEIVED
APR 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16B84						
SILVER, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
SILVER, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
SILVER, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/20/08
ALUMINUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/20/08
ALUMINUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
ARSENIC, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
ARSENIC, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	001	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
POTASSIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
POTASSIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/20/08
SODIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/20/08
SODIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
NICKEL, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
NICKEL, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	001	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	001 REP	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	001 MS	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16B85						
SILVER, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	002	S	08CO041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	002	S	08LO100	02/28/08	03/13/08	03/13/08
J16B86						
SILVER, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	003	S	08LO100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	003	S	08C0041	02/28/08	03/05/08	03/05/08
MERCURY, TOTAL	003 REP	S	08C0041	02/28/08	03/05/08	03/05/08
MERCURY, TOTAL	003 MS	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	003	S	08L0100	02/28/08	03/13/08	03/13/08
J16B87						
SILVER, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
ALUMINUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
ARSENIC, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
BORON, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
BARIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
BERYLLIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
CALCIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
CADMIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
COBALT, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
CHROMIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
COPPER, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
IRON, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
MERCURY, TOTAL	004	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
MAGNESIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
MOLYBDENUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
SODIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
NICKEL, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
LEAD, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
ANTIMONY, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
SELENIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
SILICON, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
VANADIUM, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
ZINC, TOTAL	004	S	08L0101	02/28/08	03/14/08	03/17/08
J16B88						
SILVER, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	005	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	005	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16B89						
SILVER, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	006	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	006	S	08L0100	02/28/08	03/13/08	03/13/08
J16B90						
SILVER, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	007	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	007	S	08L0100	02/28/08	03/13/08	03/13/08
J16B91						
SILVER, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	008	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	008	S	08L0100	02/28/08	03/13/08	03/13/08
J16B92						
SILVER, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	009	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	009	S	08L0100	02/28/08	03/13/08	03/13/08
J16B93						
SILVER, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
IRON, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	010	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	010	S	08L0100	02/28/08	03/13/08	03/13/08
J16B94						
SILVER, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
ALUMINUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/20/08
ARSENIC, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
BORON, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
BARIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
BERYLLIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
CALCIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
CADMIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
COBALT, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
CHROMIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
COPPER, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
MERCURY, TOTAL	011	S	08C0041	02/28/08	03/05/08	03/05/08
POTASSIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
MAGNESIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
MANGANESE, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
MOLYBDENUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
SODIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/20/08
NICKEL, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
LEAD, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
ANTIMONY, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
SELENIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
SILICON, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
VANADIUM, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08
ZINC, TOTAL	011	S	08L0100	02/28/08	03/13/08	03/13/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
SILVER, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
ALUMINUM LABORTORY	LC1 BS	S	08L0100	N/A	03/13/08	03/20/08
ALUMINUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/20/08
ARSENIC LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
ARSENIC, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
BORON LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
BORON, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
BARIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
BARIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
BERYLLIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
CALCIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
CALCIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
CADMIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
CADMIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
COBALT LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
COBALT, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
CHROMIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
CHROMIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
COPPER LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
IRON LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
IRON, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
MERCURY LABORATORY	LC1 BS	S	08C0041	N/A	03/05/08	03/05/08
MERCURY, TOTAL	MB1	S	08C0041	N/A	03/05/08	03/05/08
POTASSIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
POTASSIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
MAGNESIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
MANGANESE LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
MANGANESE, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
MOLYBDENUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
SODIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/20/08
SODIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/20/08
NICKEL LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
NICKEL, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
LEAD LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
LEAD, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
ANTIMONY LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
ANTIMONY, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
SELENIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
SELENIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
SILICON LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
SILICON, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
VANADIUM LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
VANADIUM, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
ZINC LABORATORY	LC1 BS	S	08L0100	N/A	03/13/08	03/13/08
ZINC, TOTAL	MB1	S	08L0100	N/A	03/13/08	03/13/08
SILVER LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
SILVER, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
ALUMINUM LABORTORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
ALUMINUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
ARSENIC LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
ARSENIC, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
BORON LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
BORON, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
BARIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BARIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
BERYLLIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
CALCIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
CALCIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
CADMIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
CADMIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
COBALT LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
COBALT, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
CHROMIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
CHROMIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
COPPER LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
COPPER, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
IRON LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
IRON, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
POTASSIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
POTASSIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
MAGNESIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
MANGANESE LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
MANGANESE, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
MOLYBDENUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
SODIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
SODIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
NICKEL LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
NICKEL, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
LEAD LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
LEAD, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
ANTIMONY LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
ANTIMONY, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
SELENIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
SELENIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
SILICON LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
SILICON, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
VANADIUM LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08
VANADIUM, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08
ZINC LABORATORY	LC1 BS	S	08L0101	N/A	03/14/08	03/17/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD RC-020 K1137

DATE RECEIVED: 03/04/08 LVL LOT # :0803L693

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	MB1	S	08L0101	N/A	03/14/08	03/17/08

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-B-15			DATA PACKAGE: K1137		
VALIDATOR:		LAB: LLI		DATE: 6/9/08	
			SDG: K1137		

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX				
J1GB85	J1GB86	J1GB87	J1GB88	J1GB89
J1GB90	J1GB91	J1GB92	J1GB93	J1GB94
J1GB84				
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICP interference checks acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: MS - antimony (477%) - J (all but 97)

no PAS

No MS ~~acc~~ dup 6/9/04 - J all in 97 (except Hg)

Silicon - 37.6 + 37.7% - J all

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes (No) N/A

Duplicate results acceptable? ..... Yes (No) N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No (N/A)

MS/MSD standards expired? (Levels D, E) ..... Yes No (N/A)

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: dup. silicon (45.9%) – J (all but 87)

87 – no dup – J (all but PtG)

FD – Cu (56%) silicon (31%)

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No (N/A)

ICP serial dilution %D values acceptable? ..... Yes No (N/A)

ICP post digestion spike required? ..... Yes No (N/A)

ICP post digestion spike values acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Transcription/calculation errors? ..... Yes No (N/A)

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A

Duplicate injection %RSD values acceptable? ..... Yes No N/A

Analytical spikes performed as required? ..... Yes No N/A

Analytical spike recoveries acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

MSA performed as required? ..... Yes No N/A

MSA results acceptable? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0100-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10 u	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	4.0 u	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.43	MG/KG	0.20	1.0
		Iron, Total	12.9	MG/KG	4.5	1.0
		Potassium, Total	5.2	MG/KG	4.0	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.07	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	6.6	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	5.7	MG/KG	4.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
BLANK1	08C0041-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0
BLANK1	08L0101-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	6.2	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.12	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	7.7	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	4.8	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/25/08

:LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0101-MB1	Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.04	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	4.0	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16B84	Silver, Total	4.0	0.09u	4.5	88.9	1.0
		Aluminum, Total	7870	6740	179	631.6*	1.0
		Arsenic, Total	166	3.9	179	90.8	1.0
		Boron, Total	85.5	1.9	89.5	93.4	1.0
		Barium, Total	233	58.2	179	97.4	1.0
		Beryllium, Total	4.4	0.27	4.5	91.8	1.0
		Calcium, Total	5090	2700	2240	106.5	1.0
		Cadmium, Total	4.2	0.14	4.5	90.3	1.0
		Cobalt, Total	46.3	5.5	44.8	91.1	1.0
		Chromium, Total	27.4	10.8	17.9	92.7	1.0
		Copper, Total	34.7	12.2	22.4	100.4	1.0
		Iron, Total	16500	16100	89.5	464.4*	1.0
		Potassium, Total	3990	1670	2240	103.9	1.0
		Magnesium, Total	5700	3340	2240	105.6	1.0
		Manganese, Total	303	259	44.8	99.1*	1.0
		Molybdenum, Total	77.6	0.34	89.5	86.3	1.0
		Sodium, Total	2290	129	2240	96.5	1.0
		Nickel, Total	51.7	10.2	44.8	92.6	1.0
		Lead, Total	44.7	4.3	44.8	90.2	1.0
		Antimony, Total	21.1	0.27u	44.8	47.1	1.0
		Selenium, Total	141	0.54u	179	78.8	1.0
		Silicon, Total	440	339	89.5	113.0	1.0
		Vanadium, Total	79.6	38.7	44.8	91.3	1.0
		Zinc, Total	73.1	30.3	44.8	95.5	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	J16B86	Mercury, Total	0.19	0.01	0.17	105.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16B84	Silver, Total	0.09u	0.09u	NC	1.0
		Aluminum, Total	6740	6640	1.5	1.0
		Arsenic, Total	3.9	3.0	26.1	1.0
		Boron, Total	1.9	1.9	0.00	1.0
		Barium, Total	58.2	58.4	0.34	1.0
		Beryllium, Total	0.27	0.29	8.1	1.0
		Calcium, Total	2700	2740	1.3	1.0
		Cadmium, Total	0.14	0.16	15.3	1.0
		Cobalt, Total	5.5	5.7	3.6	1.0
		Chromium, Total	10.8	11.6	7.1	1.0
		Copper, Total	12.2	12.8	4.8	1.0
		Iron, Total	16100	16300	1.6	1.0
		Potassium, Total	1670	1680	0.69	1.0
		Magnesium, Total	3340	3490	4.5	1.0
		Manganese, Total	259	260	0.58	1.0
		Molybdenum, Total	0.34	0.27u	~~NC~~ 200	1.0
		Sodium, Total	129	127	1.4	1.0
		Nickel, Total	10.2	10.4	1.9	1.0
		Lead, Total	4.3	4.0	7.2	1.0
		Antimony, Total	0.27u	0.27u	NC	1.0
		Selenium, Total	0.54u	0.54u	NC	1.0
		Silicon, Total	339	541	45.9	1.0
		Vanadium, Total	38.7	39.0	0.77	1.0
		Zinc, Total	30.3	31.3	3.2	1.0

corrected value MW 3/25/08

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/25/08

CLIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	J16B86	Mercury, Total	0.01	0.01	8.0	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/25/08

:LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0100-LC1	Silver, LCS	45.7	50.0	MG/KG	91.4
		Aluminum, LCS	458	500	MG/KG	91.5
		Arsenic, LCS	940	1000	MG/KG	94.0
		Boron, LCS	463	500	MG/KG	92.6
		Barium, LCS	468	500	MG/KG	93.5
		Beryllium, LCS	23.8	25.0	MG/KG	95.2
		Calcium, LCS	2370	2500	MG/KG	94.9
		Cadmium, LCS	23.7	25.0	MG/KG	94.8
		Cobalt, LCS	230	250	MG/KG	92.1
		Chromium, LCS	47.2	50.0	MG/KG	94.4
		Copper, LCS	122	125	MG/KG	97.4
		Iron, LCS	483	500	MG/KG	96.5
		Potassium, LCS	2270	2500	MG/KG	90.9
		Magnesium, LCS	2280	2500	MG/KG	91.2
		Manganese, LCS	72.3	75.0	MG/KG	96.4
		Molybdenum, LCS	446	500	MG/KG	89.3
		Sodium, LCS	2250	2500	MG/KG	90.1
		Nickel, LCS	189	200	MG/KG	94.6
		Lead, LCS	241	250	MG/KG	96.4
		Antimony, LCS	279	300	MG/KG	93.1
		Selenium, LCS	898	1000	MG/KG	89.8
		Silicon, LCS	188	500	MG/KG	37.7
		Vanadium, LCS	227	250	MG/KG	90.7
		Zinc, LCS	95.1	100	MG/KG	95.1
LCS1	08C0041-LC1	Mercury, LCS	4.8	4.7	MG/KG	101.6
LCS1	08L0101-LC1	Silver, LCS	47.1	50.0	MG/KG	94.2
		Aluminum, LCS	494	500	MG/KG	98.9
		Arsenic, LCS	924	1000	MG/KG	92.4
		Boron, LCS	456	500	MG/KG	91.2
		Barium, LCS	467	500	MG/KG	93.5
		Beryllium, LCS	23.8	25.0	MG/KG	95.2
		Calcium, LCS	2410	2500	MG/KG	96.4
		Cadmium, LCS	23.6	25.0	MG/KG	94.4
		Cobalt, LCS	239	250	MG/KG	95.5
		Chromium, LCS	47.8	50.0	MG/KG	95.6
		Copper, LCS	128	125	MG/KG	102.8
		Iron, LCS	475	500	MG/KG	94.9
		Potassium, LCS	2270	2500	MG/KG	90.6

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/25/08

:LIENT: TNUHANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0101-LC1	Magnesium, LCS	2330	2500	MG/KG	93.2
		Manganese, LCS	73.2	75.0	MG/KG	97.6
		Molybdenum, LCS	462	500	MG/KG	92.5
		Sodium, LCS	2210	2500	MG/KG	88.6
		Nickel, LCS	189	200	MG/KG	94.6
		Lead, LCS	239	250	MG/KG	95.6
		Antimony, LCS	280	300	MG/KG	93.2
		Selenium, LCS	897	1000	MG/KG	89.7
		Silicon, LCS	188	500	MG/KG	37.6
		Vanadium, LCS	237	250	MG/KG	94.7
		Zinc, LCS	98.4	100	MG/KG	98.4

Date: 10 June 2008
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-BC Burial Grounds – Soil Full Protocol – Waste Site 100-B-19
Subject: Wet Chemistry - Data Package No. K1137-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K1137 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J16B84	2/28/08	Soil	C	See note 1
J16B85	2/28/08	Soil	C	See note 1
J16B86	2/28/08	Soil	C	See note 1
J16B87	2/28/08	Soil	C	See note 1
J16B88	2/28/08	Soil	C	See note 1
J16B89	2/28/08	Soil	C	See note 1
J16B90	2/28/08	Soil	C	See note 1
J16B91	2/28/08	Soil	C	See note 1
J16B92	2/28/08	Soil	C	See note 1
J16B93	2/28/08	Soil	C	See note 1
J16B94	2/28/08	Soil	C	See note 1

1 – Chromium VI by 7196A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 30 days for chromium VI.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-

detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blanks**

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J".
Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate

analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J16B86/J16B94) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package K1137 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K1137	REVIEWER: ELR	Project: 100-B-19	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/11/08

LIENT: TNU-HANFORD RC-020 K1137 LVL LOT #: 0803L693
ORK ORDER: 11343-606-001-9999-00

AMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
001	J16B84	% Solids	94.7	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
002	J16B85	% Solids	96.5	%	0.01	1.0
		Chromium VI	0.72	MG/KG	0.42	2.0
003	J16B86	% Solids	94.3	%	0.01	1.0
		Chromium VI	0.28	MG/KG	0.21	1.0
004	J16B87	% Solids	95.8	%	0.01	1.0
		Chromium VI	0.34	MG/KG	0.21	1.0
005	J16B88	% Solids	97.2	%	0.01	1.0
		Chromium VI	0.22	MG/KG	0.21	1.0
006	J16B89	% Solids	96.4	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
007	J16B90	% Solids	95.5	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
008	J16B91	% Solids	91.3	%	0.01	1.0
		Chromium VI	0.22 u	MG/KG	0.22	1.0
009	J16B92	% Solids	94.5	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
010	J16B93	% Solids	96.4	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
011	J16B94	% Solids	95.6	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0

VF 6/9/08

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-020 K1137
LVL#: 0803L693

W.O.#: 11343-606-001-9999-00
Date Received: 03-04-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 11 soil samples.

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

   LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

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 Chromium VI was within the method criteria.

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

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analysis for Percent Solids was within the 20% Relative Percent Difference (RPD) control limit however replicate analysis for Chromium VI was outside the control limit that may be attributed to sample inhomogeneity.

9. Results for soil 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.

3/17/08
Date

Jain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

njp\i03-693

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 15 pages.

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

Collector			
C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	Price Code: 8 L — Data Turnaround: 21 days
Project Designation 100-BC Burial Grounds - Soil Full Protocol	**Sampling Location** 100-B-19	**SAF No.** RC-020	
Ice Chest No. ERC-02-505	**Field Logbook No.** EFL1173-14 / **COA** R10B192000	**Method of Shipment** FED EX	
Shipped To EBERLINE SERVICES/LIONVILLE	**Offsite Property No.** A080192	**Bill of Lading/Air Bill No.** see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
None Cool 4°C

Preservation	None	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	250mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196									

Sample No.	Matrix *	Sample Date	Sample Time										
J16B84	SOIL	2.28.08	1330	✓	✓								
J16B85	SOIL		1340	✓	✓								
J16B86	SOIL		1350	✓	✓								
J16B87	SOIL		1400	✓	✓								
J16B88	SOIL	2.28.08	1407	✓	✓								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul Wilson	2.28.08 1520	C. Martinez/C. Martinez	02/28/08 1520
C. Martinez/C. Martinez	02/28/08 1705	1060 Battelle 2B	02/28/08 1705
1060 Battelle/2B	3/3/08 0930	M Stankovich	3/3/08 0930
M Stankovich	3/3/08 1500	Fed Ex	
Fed Ex	3-4-08 1010		3-4-08 1010

SPECIAL INSTRUCTIONS
None

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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

VCH-EE-011

000000012

C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	Price Code: 8L / Data Turnaround: 21 days
Project Designation: 100-BC Burial Grounds - Soil Full Protocol	Sampling Location: 100-B-19	SAF No.: RC-020	
Ice Chest No.: ERC-02-505	Field Logbook No.: EFL1173-14 / COA: R108192000	Method of Shipment: FED EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080192	Bill of Lading/Air Bill No.: see OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None Cool 4°C

Preservation	None	Cool 4C										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	250mL	125mL										
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196										
Sample No.	Matrix *	Sample Date	Sample Time									
16B89	SOIL	2-28-08	1420	✓	✓							
16B90	SOIL		1430	✓	✓							
16B91	SOIL		1440	✓	✓							
16B92	SOIL		1455	✓	✓							
16B93	SOIL	2-28-08	1505	✓	✓							

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Paul Wilson / [signature] Date/Time: 2/28/08 1020	Received By/Stored In: C. Martinez / C. Martinez 02/28/08	Date/Time: 1520
Relinquished By/Removed From: C. Martinez / C. Martinez 02/28/08 Date/Time: 1705	Received By/Stored In: 1060 Battelle 28	Date/Time: 1705 02/28/08
Relinquished By/Removed From: 260/28 3/3/08 Date/Time: 0930	Received By/Stored In: [signature] MStankovich 3/3/08	Date/Time: 0930
Relinquished By/Removed From: [signature] MStankovich 3/3/08 Date/Time: 1500	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: [signature] 3-4-08 Date/Time: 1010	Received By/Stored In: [signature]	Date/Time: 3-4-08 1010
Relinquished By/Removed From:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

None

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)

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

Matrix *

S=Soil
SE=Sediment
SO=Solid
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

CH-EE-011

000000013

000000013

Director	Company Contact		Price Code	Date Turnaround
C. Martinez/P. Wilson	C. Martinez 509-539-2816	KESSNER, JH	8L	21 days

Project Designation	Sampling Location	SAF No.
100-BC Burial Grounds - Soil Full Protocol	100-B-19	RC-020

Ice Chest No.	Field Logbook No.	COA	Method of Shipment
ERC-02-505	EFL1173-14	R10B192000	FED EX

Shipped To	Offsite Property No.	Bill of Lading/Air Bill No.
EBERLINE SERVICES, LIONVILLE	A080192	see OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
None Cool 4°C

Preservation	None	Cool 4C									
Type of Container	G/P	G/P									
No. of Container(s)	1	1									
Volume	250mL	125mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196									
Sample No. / Matrix * / Sample Date / Sample Time											
16B94 / SOIL / 2.28.08 / 1352	✓	✓									
16B95 / SOIL											
16B96 / SOIL											
16B97 / SOIL											
16B98 / SOIL											

2.28.08 PW

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Paul Wilson	2.28.08 1620	C. Martinez/C. Martinez	02/28/08 1520
C. Martinez/C. Martinez	02/28/08 1705	1060 Battelle 2B	02/28/08 1705
1060/2B	3/3/08 0930	MS Stankovich	3/3/08 0930
MS Stankovich	3/3/08 1500	FED EX	
FED EX	3-4-08 1010		3-4-08 1010

SPECIAL INSTRUCTIONS
None

(1) ICP Metals - 6010TR (Client List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7470 - (CV)

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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

CH-EE-011

000000814

0000014

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-B-19			DATA PACKAGE: K1154		
VALIDATOR: ELR		LAB: LLI		DATE: 6/9/08	
			SDG: K1154		

ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate		

SAMPLES/MATRIX				
J1GB84	J1GB85	J1GB86	J1GB87	J1GB88
J1GB89	J1GB90	J1GB91	J1GB92	J1GB93
J1GB94				
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: no PAS

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/11/08

CLIENT: TNU-HANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI023-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/11/08

CLIENT: TNU-HANFORD RC-020 K1137 LVL LOT #: 0803L693
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-011	J16B94	Soluble Chromium VI	4.3	0.21u	4.2	100.7	1.0
		Insoluble Chromium VI	1290	0.21u	1260	102.1	100
BLANK10	08LVI023-MB1	Soluble Chromium VI	3.9	0.20u	4.0	98.2	1.0
		Insoluble Chromium VI	1200	0.20u	1170	103.1	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/11/08

CLIENT: TNU-HANFORD RC-020 K1137 LVL LOT #: 0803L693

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-011REP	J16B94	% Solids	95.6	95.7	0.13	1.0
		Chromium VI	0.21u	0.25	88.0	1.0