

Date: July 25, 2007
To: Fluor Hanford, Inc
From: Environmental Quality Management, Inc.
Project: Central Plateau Ecological Risk Assessment
Subject: Data Validation for Nitrate/Nitrite in Data Package H3513

INTRODUCTION

This memo presents the results of data validation on Data Package H3513, prepared by the Lionville laboratory. 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 Level	Analysis
B1MRX0	3/15/07	Soil	C	Nitrate/nitrite by EPA 353.2 (mod)

Data validation was conducted in accordance with HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses* and D&D-24693, Rev. 1, *Sampling and Analysis Instruction for BC Controlled Area Soil Characterization*. Appendices 1 through 6 provide additional 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 Data Requested by Client

DATA QUALITY OBJECTIVES

Holding Times

Analytical holding times are assessed to ascertain whether the holding time requirements have been met. The analytical holding time requirement for anions in soils is specified as "N/A/48 h" in D&D-24693. This indicates that no holding time requirement is specified for the soil sample, but that once the anions are extracted from the sample, it must be analyzed within 48 hours. However, soil samples for anion analysis must be shipped and stored at 4 degrees C.

These requirements were met.

Blanks

- Method blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one method blank per analytical batch of samples must be analyzed. The method blank consists of pure water and is processed through each set of the sample preparation and analysis procedures.

The laboratory blank shall be less than or equal to the required detection limit and less than or equal to three times the instrument detection limit.

The method blank result met these criteria.

- Field Blanks

No field blanks were submitted for analysis

Accuracy

- Matrix Spikes

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spikes must be analyzed at least one per analytical batch and must be taken through the same procedures and added as early in the sample preparation process as possible. Matrix spike recoveries must fall within the range of 70 to 130%. If the sample concentration exceeds the spike concentration by a factor of four or more, no qualification is required.

The matrix spike recovery was within limits.

- Laboratory Control Sample (LCS) or Blank Spike Sample (BBS)

LCSs /BSSs are also used to measure accuracy. They are analyzed at a frequency of one per analytical batch. The acceptable limits for the LCS/ BSS are 70-130%.

The LCS/BSS met the acceptance criteria.

Precision

- Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike 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 required detection limit

(RDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the RDL, the control limit is two times the RDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

The duplicate spike result was acceptable.

- Field Duplicate Samples

No field duplicates were submitted for analysis

Analytical Detection Limits

Reported analytical detection levels were compared against the required detection limits (RDLs) given in D&D-24693.

The analyte was detected in the sample. The detection limit was adequate.

Completeness

Data package H3513 was submitted for validation and verified for completeness. Completeness is based on the percentage of requested data that were reported and determined to be valid (i.e., not rejected).

The completeness percentage was 100%

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

None found.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analysis*, Fluor Hanford, Inc., Richland, Washington (2004).

D&D-24693, Rev. 1, *Sampling and Analysis Instruction for BC Controlled Area Soil Characterization*, Fluor Hanford, Inc., Richland, Washington (2007).

Appendix 1
Glossary of Data Reporting Qualifiers

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

U - Indicates the compound or analysis 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 concentration is an estimate, but the data was usable for decision making purposes.

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

R - Indicates the compound or analyte was analyzed for, detected and due to 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 a major QC deficiency.

Appendix 2
Summary of Data Qualifiers

SDG: H3513	REVIEWER: JRJ	DATE: 7/25/07	PAGE 1 OF 1
COMMENTS: No results were qualified.			
SAMPLES AFFECTED	QUALIFIER	COMPOUND	REASON

Appendix 3
Annotated Laboratory Reports

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/08/07

CLIENT: TNUHANFORD P07-029 H3533
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 07041190

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1MXX0	solids	97.6	g	0.01	1.0
		Nitrate Nitrite	0.43	MG/KG	0.1	1.0

JAL
7/25/07

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Lionville Laboratory Incorporated
 SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU, Hanford
 Project: SARROW/Release F: F07-029

Date: 4/26/07

LvLI Batch #: 0704L190

Sample Custodian: [Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: <u>Fed Ex</u>	Airbill # <u>7929 7495 7916</u>
2. Custody Seals on coolers or shipping containers intact, signed & dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
3. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
4. All expected paperwork received (COC & other client specific information) sealed in plastic bag and easily accessible?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5. Samples received cooled or ambient?	Temp <u>2.3</u> °C	Cooler # <u>GRP-07-008</u>
How was the temperature taken?	<input checked="" type="checkbox"/> IR	<input type="checkbox"/> Temp. Blank
Is the Temp. Criteria met for these samples? (Rig in soils @ 4°C)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
7. COC (Client & LvLI) signed & dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
8. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
9. All samples on COC received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
All samples received on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
10. All sample label information matches COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
11. Samples properly preserved? (If #5 is no, then this is no.)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
12. Samples received within hold times?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Short holds taken to wet lab?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
13. VOA, TOC, TOX free of headspace?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
14. QC stickers placed on bottles designated by client?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page)	<input checked="" type="checkbox"/> Yes	<u>0704L190</u>
16. Project Manager contacted concerning any discrepancies?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Person Contacted _____	Date _____	



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Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: <i>Central Plateau Phase III</i>	DATA PACKAGE: <i>H3513</i>				
VALIDATOR: <i>JR Jewett</i>	LAB: <i>Lionville</i>	DATE: <i>7/25/07</i>			
SDG: <i>H3513</i>					
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.J	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO₃/NO₂
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
<i>BIMR X 0 / Soil</i>					

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 DATA VALIDATION CHECKLISTS

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: _____

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

- Spike samples analyzed?..... Yes No N/A
- Spike recoveries acceptable?..... Yes No N/A
- Spike 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: _____

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

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

Duplicate RPD values acceptable? *substantiated?* 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: *Hold time specified as "NA/48h"*
The 48 hr hold time after extraction
was not exceeded.

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

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
(Quality Control Data)**

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F07-029 H3513

DATE RECEIVED: 04/26/07

LVL LOT # :0704L190

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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BIMRXG

% SOLIDS	001	S	07L4SA46	03/15/07	04/30/07	05/01/07
% SOLIDS	001 REP	S	07L4SA46	03/15/07	04/30/07	05/01/07
NITRATE NITRITE	001	S	07LN3A17	03/15/07	05/03/07	05/03/07
NITRATE NITRITE	001 REP	S	07LN3A17	03/15/07	05/03/07	05/03/07
NITRATE NITRITE	001 MS	S	07LN3A17	03/15/07	05/03/07	05/03/07

LAB QC:

NITRATE NITRITE	MB1	S	07LN3A17	N/A	05/03/07	05/03/07
NITRATE NITRITE	MB1 BS	S	07LN3A17	N/A	05/03/07	05/03/07



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Bioville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/08/07

CLIENT: TRUMANFORD P07-029 H2S13
WORK ORDER: 11343-656-001-9999-00

LAB LOT #: 07041190

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LR2AL7-00A	Nitrate Nitrite	0.10	MG/KG	0.10	1.0

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/08/07

CLIENT: THUNDERBOLT F07-029 H3513
 WORK ORDER: 11343-606-001-9959-00

LVL LOT #: 07041190

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	RECOV	DISTORTION FACTOR (SPK)
-001	9188X3	Nitrate Nitrite	5.2	0.43	4.4	107.9	1.0
BLANK10	07LN3A17-M81	Nitrate Nitrite	5.0	0.10u	5.0	99.0	1.0

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LORVILLE LABORATORY, Inc.

INSTRUMENTS PRECISION REPORT 05/28/07

CLIENT: IYKHHHHHORD PRT-029 H851E
MOMX CUMER: 11343-606-201-8996-00

LVL LCV #: 07044190

SAMPLE	SIZE IS	ANALYSE	INITIAL	RESULT	REPLACES RPD	DILUTION
-001NEP	BIOMEXO	9 SOLIDS	97.6	97.5	0.002	1.0
		MILWAU NIPZLE	0.43	0.45	4.4	1.9

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