GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09332-TMA-611 (923-E418, Filename B09332.GCH)

9413225.1810

MEMORANDUM

MAR 1994
RECEIVED
TQS

TO: 200-UP-2 Project QA Record

March 3, 1994

FR: Susan Winter, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09332-TMA-611 (923-E418, Filename B09332.GCH)

INTRODUCTION

This memo presents the results of data validation on data package B09332-TMA-611 prepared by the Thermo Analytical (TMA) 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	ANALYSIS
B09332 B09333 B09335	09/09/93 09/10/93 09/10/93	SOIL SOIL SOIL	SEE NOTE 1
Note 1. All samples were analyzed for chloride, fluoride, and sulfate using Method 300.0 (ion chromatrography) and nitrate+nitrite-N using Method 353.2 (modified).			

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with the exception of the nitrate+nitrite-N quantitation limit reported for sample B09332 which was corrected from 2.49 mg-N/kg to 2.47 mg-N/kg. Attachments 3 and 5 provide the corrected laboratory sample results and supporting documentation.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of three samples were validated in this data package with a total of 12 determinations reported, all of

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MAR 7 1994

001

which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

9413225.1812

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9W3225.1813

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9413225.1815

DATA QUALIFICATION SUMMARY

SDG: B09332-TMA-611	VALIDATOR:	DATE: March 3, 1994	PAGE 1 OF 1
COMMENTS: GENERAL CHEMISTRY			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATIONS REQUIRED			

9413225.1816

-006

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9W13225.1817

Validated Data Summary, Data Package: B09332-IMA-611

	Samp#	B09332		B09333		B09336	
	Date	9-9-93		9-10-93		9-10-93	
	Location	299-W19-95		299-W19-97		299-W19-95	
	Depth	60.00 - 62.50		50.00 - 52.50		74.80 - 77.30	
	Type	---		---		---	
	Comments	---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q
CHLORIDE	MG/KG	8.600		8.400		7.800	
FLUORIDE	MG/KG	2.600		2.300		0.800	
SULFATE	MG/KG	13.000		19.000		15.000	
NITRATE+NITRITE N	MG-N/KG	2.470	U	7.430		2.490	U

Verified
[illegible] 3/04/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09332 FRACTION 01E TEST CODE WCCLPS NAME Anions in Solids

299-W19-95
60-62.5'

Date & Time Collected 09/09/93 Category

ANIONS AND WET CHEMISTRY - SOLIDS

Q

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	8.6	mg/kg	1.0
Fluoride	300.0	2.6	mg/kg	0.5
Sulfate	300.0	13	mg/kg	5

FORM I

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Verified
3/3/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09333 FRACTION 02E TEST CODE WCCLPS NAME Anions in Solids

Date & Time Collected 09/10/93 Category

299-W19-97
50-52.5'

ANIONS AND WET CHEMISTRY - SOLIDS

Q

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	8.4	mg/kg	1.0
Fluoride	300.0	2.3	mg/kg	0.5
Sulfate	300.0	19	mg/kg	5

FORM I

9413225.1820

Verified.
3/3/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93 Results by Sample

SAMPLE ID B09336 FRACTION 03C TEST CODE WCCLPS NAME Anions in Solids

299-W19-95
74.8-77.3'

Date & Time Collected 09/10/93 Category

ANIONS AND WET CHEMISTRY - SOLIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	7.8	mg/kg	1.0
Fluoride	300.0	0.8	mg/kg	0.5
Sulfate	300.0	15	mg/kg	5

Q

FORM I

9413225.1821

Verified

2/3/94

011

Received: 09/15/93 Results by Sample

Analyzed for nitrate + Nitrite-N by Method 353.2 (modified) U

3/3/94

SAMPLE ID B09332 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 09/09/93 Category SOIL

NITR_S ~~<2.49~~ <2.47 mg-N/kg U
mg N/kg

SAMPLE ID B09333 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 09/10/93 Category SOIL

NITR_S 7.43
mg N/kg

SAMPLE ID B09336 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49 U
mg N/kg

SAMPLE ID B09336D SAMPLE # 03 FRACTIONS: B
Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49 U
mg N/kg

SAMPLE ID B09336S SAMPLE # 03 FRACTIONS: C
Date & Time Collected 09/10/93 Category SOIL

NITR_S 19.2
mg N/kg

SAMPLE ID LCSS SAMPLE # 04 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NITR_S 2.02
mg N/L

9413225.1822

verified

012

3/3/94

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc., retains ownership of this report until associated submitted invoice is satisfied. Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Client will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invoice amount. The results listed refer only to tested samples and applicable parameters. Samples are not analyzed in accordance with New York State protocol unless indicated. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc., will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9W3225.1823

9413225.1824

GENERAL CHEMISTRY RESULTS

CASE NO. 09-028

Soil Sample #:

B09332 B09333
B09336

CASE NARRATIVE

No problems were encountered during sample analysis. All QC results were acceptable.

Maureen Parrish

Maureen Parrish

~~0000026~~

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS

Company Contact L E ROGERS

Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2

Collection Date 9-10-93

Ice Chest No. SML 366

Field Logbook No. EFL-1091

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) NONE DETECTED

Sample Identification

1)

B09333

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2)

B09336

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- ~~1,250ml~~ Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

1,250ml

FER 9-10-93

3)

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

FER 9-10-93

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 [signature] 9-10-93	Roy T Sickle [signature]	9-10-93 1040
Relinquished by: Roy T Sickle [signature] 1054 9-10-93	Received by: [signature] H. HARRIS	Date/Time: 9-14-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

-015

~~0000024~~

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 9-9-93

Ice Chest No.: SML 366

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTABLE

Sample Identification

1) B09332

2,120ml
1,250ml P:CLP;TAL Metals,Hg,Ti
~~1,250ml~~ Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

9-10-93

9413225.1822

2) ~~B09334~~ B09335

2,120ml
~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml~~ Gs:VOA CLP
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

9-10-93

3)

1,250ml P:CLP;TAL Metals,Hg,Ti
~~1,250ml Gs:VOA CLP~~
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[ ] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 [signature] 9-10-93	Robert Sickle [signature]	1040 9-10-93
Relinquished by: Robert Sickle [signature] 1054 9-10-93	Received by: [signature] / H. Narciso	Date/Time: 9-11-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9W3225.1827

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2	DATA PACKAGE: B09332-TMA-611	
VALIDATOR: [illegible]	LAB: TMA	DATE: 03/01/94
CASE:	SDG: B09332-TMA-611	

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 Soils

B09332

B09333

B09336

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

9413225.1828

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? Yes No N/A

Are initial calibration results acceptable? . . . . . Yes No N/A

Was a calibration check performed for all applicable analyses? Yes No N/A

Are calibration check results acceptable? . . . . . Yes No N/A

Comments: The initial calibration for IC was performed on 08/28/93. The samples were analyzed on 10/05/93. However, no qualification was required since a CCV was performed with the samples and was within limits.

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments:

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . Yes No N/A

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

Were LCS analyses performed at the required frequency? . . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

Comments:

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . Yes No N/A

Are laboratory duplicate sample RPD values acceptable? . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

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GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments:

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

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

Are results supported in the raw data? See note below . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . . Yes No N/A

Comments:

The nitrate + nitrite-N quantitation limit for sample B0932 was corrected from 2.49 mg-N/kg to 2.47 mg-N/kg. See attached laboratory documentation for calculation supporting data and calculation.

3/3/93

9413225.1830

HOLDING TIME SUMMARY

B09332-TMA-611

SDG:	VALIDATOR:	DATE: 3/01/94	PAGE 1 OF 1
COMMENTS: General Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09332	IC	9/09/93	10/01/93	10/05/93	25	1	None
B09333	↓	9/10/93	↓	↓	24	1	↓
B09336	↓	9/10/93	↓	↓	24	1	↓
B09332	NO/NO/N	9/09/93	10/09/93	10/06/93	25	2	None
B09333	↓	9/10/93	↓	↓	24	2	↓
B09336	↓	9/10/93	↓	↓	24	2	↓

Nitrate + Nitrite-N Raw Data

9413225.1832

$\frac{21.179}{19.95}$ 106.1%

Sample no.	Sample ID	mA	mg/L	r.s.d.	Remarks
	06:03	117	2.120		

Sample BC9332 Below

$< 0.25\ mg/L \times \frac{50\ ml}{5.068\ g} = < 2.47\ mg/kg$

Sample no.	Sample ID	mA	mg/L	r.s.d.	Remarks
	1039103-3.	[illegible]	2.1183		

B09332

3/3/94

~~016~~

022

GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
~~B093322-TMA-611~~ (923-E418, Filename B09332.GCH)
B09332-TMA-611
gjw
6/27/94

9413225.1833

COPY

MEMORANDUM

RECORD COPY

TO: 200-UP-2 Project QA Record

April 20, 1994

FR: Susan Winter, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09332-TMA-611 (923-E418, Filename B09332.GCH)

9413225.1834

INTRODUCTION

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SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
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Note 1. All samples were analyzed for chloride, fluoride, and sulfate using Method 300.0 (ion chromatrography) and nitrate+nitrite-N using Method 353.2 (modified).			

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

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Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with the exception of the nitrate+nitrite-N quantitation limit reported for sample B09332 which was corrected from 2.49 mg-N/kg to 2.47 mg-N/kg. Attachments 3 and 5 provide the corrected laboratory sample results and supporting documentation.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Revised 4/20/94

-001

Completeness. The data package was complete for all requested analyses. A total of three samples were validated in this data package with a total of 12 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

9413225.1835

Revised 4/20/94

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9413225.1836

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9413225.1838

DATA QUALIFICATION SUMMARY

SDG: B09332-TMA-611	VALIDATOR:	DATE: March 3, 1994	PAGE 1 OF 1
COMMENTS: GENERAL CHEMISTRY			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
NO QUALIFICATIONS REQUIRED			

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9/1 3225.1840

Validated Data Summary, Data Package: B09332-TMA-611

	Samp#	B09332		B09333		B09336	
	Date	9-9-93		9-10-93		9-10-93	
	Location	299-W19-95		299-W19-97		299-W19-95	
	Depth	60.00 - 62.50		50.00 - 52.50		74.80 - 77.30	
	Type	---		---		---	
	Comments	---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q
CHLORIDE	MG/KG	8.600		8.400		7.800	
FLUORIDE	MG/KG	2.600		2.300		0.800	
SULFATE	MG/KG	13.000		19.000		15.000	
NITRATE+NITRITE-N	MG-N/KG	2.470	U	7.430		2.490	U

Verified

3/04/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09332 FRACTION 01E TEST CODE WCCLPS NAME Anions in Solids

299-W19-95
60-62.5'

Date & Time Collected 09/09/93 Category

ANIONS AND WET CHEMISTRY - SOLIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT	Q
Chloride	300.0	8.6	mg/kg	1.0	
Fluoride	300.0	2.6	mg/kg	0.5	
Sulfate	300.0	13	mg/kg	5	

FORM I

9413225.1842

Verified
3/3/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09333 FRACTION 02E TEST CODE WCCLPS NAME Anions in Solids

Date & Time Collected 09/10/93 Category

299-W19-97
50-52.5'

ANIONS AND WET CHEMISTRY - SOLIDS

Q

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	8.4	mg/kg	1.0
Fluoride	300.0	2.3	mg/kg	0.5
Sulfate	300.0	19	mg/kg	5

FORM I

9413225.1843

Verified.
3/3/94

TMA Inc. REPORT Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09336 FRACTION 03C TEST CODE WCCLPS NAME Anions in Solids

Date & Time Collected 09/10/93 Category

299-W19-95
74.8-77.3'

ANIONS AND WET CHEMISTRY - SOLIDS

Q

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	7.8	mg/kg	1.0
Fluoride	300.0	0.8	mg/kg	0.5
Sulfate	300.0	15	mg/kg	5

FORM I

verified
2/3/94

Received: 09/15/93 Results by Sample

Analyzed for nitrate + Nitrite-N by Method 353.2 (modified)

SAMPLE ID B09332 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 09/09/93 Category SOIL

3/3/94

NITR_S ~~<2.49~~ <2.47 mg-N/kg
mg N/kg

u

SAMPLE ID B09333 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 09/10/93 Category SOIL

NITR_S 7.43
mg N/kg

SAMPLE ID B09336 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49
mg N/kg

u

SAMPLE ID B09336D SAMPLE # 03 FRACTIONS: B
Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49
mg N/kg

u

SAMPLE ID B09336S SAMPLE # 03 FRACTIONS: C
Date & Time Collected 09/10/93 Category SOIL

NITR_S 19.2
mg N/kg

SAMPLE ID LCSS SAMPLE # 04 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NITR_S 2.02
mg N/L

9413225.1845

verified

·012

3/3/94

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc., retains ownership of this report until associated submitted invoice is satisfied. Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Client will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invoice amount. The results listed refer only to tested samples and applicable parameters. Samples are not analyzed in accordance with New York State protocol unless indicated. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc., will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

GW3225-1845

9413225.1847

GENERAL CHEMISTRY RESULTS

CASE NO. 09-028

Soil Sample #:

B09332 B09333
B09336

CASE NARRATIVE

No problems were encountered during sample analysis. All QC results were acceptable.

Maureen Parrish 11/29/93

Maureen Parrish

~~0000026~~

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS

Company Contact L E ROGERS

Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2

Collection Date 9-10-93

Ice Chest No. SML 366

Field Logbook No. EFL-1091

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) NONE DETECTED

Sample Identification

1)

B09333

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2)

B09336

1,250ml P:CLP;TAL Metals,Hg,Ti
~~1,250ml~~ Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2,120ml
YER
9-10-93

3)

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

YER 9-10-93

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
Loren E. Rogers 1040 9-10-93	Roy T Sickle [signature]	9-10-93 1040
Roy T Sickle [signature] 1054 9-10-93	H. Narciso [signature]	9-14-93 10:50

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

-015

~~000062A~~

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 9-9-93

Ice Chest No.: SML 366

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.:

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTABLE

Sample Identification

1) B09332

1,250ml P:CLP;TAL Metals,Hg,Ti
2,120ml ~~1,250ml~~ Gs:VOA CLP
1,250ml nG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) ~~B09334~~ B09335

2,120ml ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
~~1,250ml~~ Gs:VOA CLP
~~1,250ml nG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

9-10-93

3)

1,250ml P:CLP;TAL Metals,Hg,Ti
~~1,250ml Gs:VOA CLP~~
1,250ml nG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1040 Loren E. Rogers 9-10-93	Roy T. Sickle	1040 9-10-93
Relinquished by: Roy T. Sickle 1054 9-10-93	Received by: H. Narciso	Date/Time: 9-14-93 10:50
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

94A3225.1850

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: B09332-TMA-611	
VALIDATOR: [illegible]	LAB: TMA		DATE: 03/01/94
CASE:		SDG: B09332-TMA-611	

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 Soils

B09332
B09333
B09336

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

9413225.1851

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? Yes No N/A

Are initial calibration results acceptable? . . . . . Yes No N/A

Was a calibration check performed for all applicable analyses? Yes No N/A

Are calibration check results acceptable? . . . . . Yes No N/A

Comments: The initial calibration for IC was performed on 08/28/93. The samples were analyzed on 10/05/93. However, no qualification was required since a CCV was performed with the samples and was within limits.

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments:

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . Yes No N/A

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

Were LCS analyses performed at the required frequency? . . . . Yes No N/A

Are LCS recoveries acceptable? . . . . . Yes No N/A

Comments:

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . Yes No N/A

Are laboratory duplicate sample RPD values acceptable? . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

9413225.1852

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments:

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

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

Are results supported in the raw data? See note below . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . . Yes No N/A

Comments:

The nitrate + nitrite-N quantitation limit for sample B09332 was corrected from 2.49 mg-N/kg to 2.47 mg-N/kg. See attached laboratory documentation for calculation supporting data and calculation.

3/31/94

9413225.1853

HOLDING TIME SUMMARY

B09332-TMA-611

SDG:	VALIDATOR: [illegible]	DATE: 3/01/94	PAGE 1 OF 1
COMMENTS: General Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09332	IC	09/09/93	10/04/93	10/05/93	25	1	None
B09333	↓	09/10/93	↓	↓	24	1	↓
B09336	↓	09/10/93	↓	↓	24	1	↓
B09332	$NO_2/NO_3/N$	9/09/93	10/04/93	10/06/93	25	2	None
B09333	↓	9/10/93	↓	↓	24	2	↓
B09336	↓	9/10/93	↓	↓	24	2	↓

Nitrate + Nitrite-N Raw Data

9413225.1855

21.179
19.95

106.1%

Sample No.	Sample ID	mA	mg/L	r.s.d.	Remarks
	[illegible]	[illegible]	[illegible]		

Sample BC9332 Below

$< 0.25\ mg/L \times \frac{50\ ml}{5.068\ g} = < 2.47\ mg/kg$

Sample No.	Sample ID	mA	mg/L	r.s.d.	Remarks
	[illegible]	[illegible]	[illegible]		

B09332

3/31/94

~~016~~

022