

20 04 27

9453549D

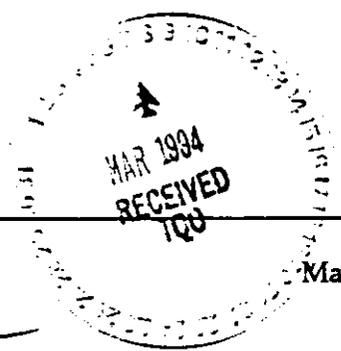
~~9452475D~~

ATTACHMENT 21
Page 1 of 23

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

019152251810

MEMORANDUM



TO: 200-UP-2 Project QA Record

March 3, 1994

FR: Susan Winter, Golder Associates Inc. *S. Winter*

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	09/09/93	SOIL	SEE NOTE 1
B09333	09/10/93	SOIL	
B09335	09/10/93	SOIL	

Note 1. All samples were analyzed for chloride, fluoride, and sulfate using Method 300.0 (ion chromatography) 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

947825 09 578716

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.

9473225.1812

ATTACHMENT 1
GLOSSARY OF DATA REPORTING QUALIFIERS

9413225.1813

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- 9/13/25 18:52
- 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

9/13/25 10:15

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9113225.1817

*Verified
3/04/94*

Sample#	Date	Location	Depth	Type	Comments	Parameter
B09332	9-9-93	299-M19-95	60.00 - 62.50	---	---	CHLORIDE MG/KG 8.600
B09333	9-10-93	299-M19-97	50.00 - 52.50	---	---	CHLORIDE MG/KG 8.400
B09336	9-10-93	299-M19-95	74.80 - 77.30	---	---	CHLORIDE MG/KG 7.800
						FLUORIDE MG/KG 0.800
						SULFATE MG/KG 15.000
						NITRATE+NITRITE N MG-N/KG 2.470 U

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

9443225.1818

Received: 09/14/93

Results by Sample

SAMPLE ID 809332

FRACTION 01E

TEST CODE UCCLPS

NAME Anions in Solids

299-L19-95

Date & Time Collected 09/09/93

Category _____

60-62.5'

ANIONS AND WET CHEMISTRY - SOLIDS				
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

Q

FORM 1

6181-5725-1819

Unified
[Signature]
2/3/94

~~000010~~

TMA Inc.

REPORT

Work Order # A3-05-028

Received: 09/14/93

Results by Sample

SAMPLE ID 809333

FRACTION 02E

TEST CODE WCCLPS

NAME Anions in Solids

299-W19-97
50-52.5'

Date & Time Collected 09/10/93

Category _____

ANIONS AND WET CHEMISTRY - SOLIDS				
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

R

FORM 1

9473225.1820

Ver. Recd.
[Signature]
3/3/94

Received: 09/14/93

Results by Sample

SAMPLE ID 809336

FRACTION 03C

TEST CODE WCCLPS

NAME Anions in Solids

Date & Time Collected 09/10/93

Category _____

299-619-95
74.8-77.3'

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

9473225.1821

verified
[Signature]
3/3/94

Received: 09/15/93

Results by Sample

Analyzed for nitrate + Nitrite - N by Method 353.2 (mod. Fin)

u

SAMPLE ID 809332 SAMPLE # 01 FRACTIONS: A
 Date & Time Collected 09/09/93 Category SOIL

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

3/3/94

u

SAMPLE ID 809333 SAMPLE # 02 FRACTIONS: A
 Date & Time Collected 09/10/93 Category SOIL

NITR_S 7.43
 mg N/kg

SAMPLE ID 809336 SAMPLE # 03 FRACTIONS: A
 Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49
 mg N/kg

u

SAMPLE ID 809336D SAMPLE # 03 FRACTIONS: B
 Date & Time Collected 09/10/93 Category SOIL

NITR_S <2.49
 mg N/kg

u

SAMPLE ID 809336S 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

911 7225-822

verified
-012
3/3/94



Thermo Analytical Inc.

Skinner & Sherman Laboratories Inc.

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 loss 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.

300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4LAB TEST FAX (617) 890-3883

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9/1/2025 1823

4281 5726 116
9/17/25 1824

GENERAL CHEMISTRY RESULTS

----- CASE NO. 09-028

Soil Sample #:

B09332
B09336

B09333

CASE NARRATIVE

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

Maureen Parrish

Maureen Parrish

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS
 Company Contact L E ROGERS
 Project Designation/Sampling Locations 200-UP-2
 Ice Chest No. SML 366
 Bill of Lading/Airbill No. _____
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to TMA
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) NONE DETECTED

Telephone 376-7690
 Collection Date 9-10-93
 Field Logbook No. EFL-1091
 Offsite Property No. _____

Sample Identification

- 1) *5281-52700*
 +, 250ml P:CLP:TAL Metals, Hg, Ti **809333**
 +, 250ml Gs:VOA CLP
 +, 250ml aG:Semi-VOA CLP
 +, 125ml G:Anions F, Cl, SO₄ (EPA 300.0)
 +, 125ml P/G:Anions NO₂, NO₃ (EPA 353.2)
 +, 125ml G:Cyanide CLP
 +, 125ml Gw:Kerosene (8015H)
 +, 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) Hp-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) *9-10-93*
 +, 250ml P:CLP:TAL Metals, Hg, Ti **809336**
 +, 250ml Gs:VOA CLP
 +, 250ml aG:Semi-VOA CLP
 +, 125ml G:Anions F, Cl, SO₄ (EPA 300.0)
 +, 125ml P/G:Anions NO₂, NO₃ (EPA 353.2)
 +, 125ml G:Cyanide CLP
 +, 125ml Gw:Kerosene (8015H)
 +, 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) Hp-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

- 3) *PER 9-10-93*
 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 (8015H)
 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) Hp-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: <i>1040</i> <i>Tom T. [Signature]</i>	Received by: <i>POYT Sicile</i> <i>Tom T. [Signature]</i>	Date/Time: <i>9-10-93 1040</i>
Relinquished by: <i>POYT Sicile</i> <i>Tom T. [Signature]</i>	Received by: <i>J. HARRIS</i> <i>[Signature]</i>	Date/Time: <i>9-14-93 10:50</i>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:
Comments:		

6000-407

Westinghouse Hanford Company	CHAIN OF CUSTODY	
Custody Form Initiator: <u>L E ROGERS</u>	Telephone: <u>376-7690</u>	
Company Contact: <u>L E ROGERS</u>	Collection Date: <u>9-9-93</u>	
Project Designation/Sampling Locations: <u>200-UP-2</u>	Field Logbook No.: <u>EFL-1091</u>	
Ice Chest No.: <u>SML 366</u>	Offsite Property No.:	
Bill of Lading/Airbill No.:		
Method of Shipment: <u>OVERNIGHT AIR SERVICE</u>		
Shipped to: <u>TMA</u>		
Possible Sample Hazards/Remarks: <u>Keep samples at 4C (SOIL) NONE DETECTABLE</u>		

Sample Identification

- 1) 309332
- 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 (8015H)
 - 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) Hg-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) 309331 309335
- 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 (8015H)
 - 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) Hg-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

- 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 (8015H)~~
 - ~~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) Hg-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: <u>1040</u> <u>[Signature]</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1040</u> <u>9-10-93</u>			
Relinquished by: <u>[Signature]</u> <u>9-10-93</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1054</u> <u>9-14-93 10:50</u>			
Relinquished by:	Received by:	Date/Time:			
Relinquished by:	Received by:	Date/Time:			

Final Sample Disposition		
Disposal Method:	Disposed by:	Date/Time:
Comments:		

ATTACHMENT 5
DATA VALIDATION SUPPORTING DOCUMENTATION

9473225-1827

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-UP-2		DATA PACKAGE: R09332-TMA-611		
VALIDATOR:	<i>[Signature]</i>		LAB: TMA	DATE: 03/01/94	
CASE:			SDG: R09332-TMA-611		
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> Anions/IC	<input type="checkbox"/> TOC	<input type="checkbox"/> TOX	<input type="checkbox"/> TPH-418.1	Oil and Grease	Alkalinity
<input type="checkbox"/> Ammonia	<input type="checkbox"/> BOD/COD	<input type="checkbox"/> Chloride	<input type="checkbox"/> Chromium-VI	<input type="checkbox"/> pH	<input checked="" type="checkbox"/> NO ₂ /NO ₃
<input type="checkbox"/> Sulfate	<input type="checkbox"/> TDS	<input type="checkbox"/> TKN	<input type="checkbox"/> Phosphate	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX: <i>Soils</i>					
<i>R09332</i>					
<i>R09333</i>					
<i>R09334</i>					

9/1/92 5. 828

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: _____

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 CCI 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

6281-5226/16

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 2.42 mg-N/Kg. See attached laboratory
documentation for calculation supporting
data and calculation.

[Signature]
3/31/04

9473225-830

Nitrate + Nitrite - N Raw Data

9413225.1832

$$\frac{21.179}{19.95}$$

106.1%

Sample No.	Sample ID	AA	ADL	ADL	Remarks
	06183	100	100		

Sample B09332 Below

$$0.25 \text{ mg/L} \times \frac{50 \text{ mg}}{5.008 \text{ g}}$$

2.47 mg/L

Sample No.	Sample ID	AA	ADL	ADL	Remarks
	1028100-C	100	100		

B09332

[Signature]
3/3/94

9453549D

~~9452475D~~

ATTACHMENT 56
Page 1 of 23

GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:

~~B093372-TMA-611~~ (923-E418, Filename B09332.GCH)

B09332-TMA-611

gwr
6/27/94

9453225-1833

COPY

MEMORANDUM

RECORDED

TO: 200-UP-2 Project QA Record

April 20, 1994

FR: Susan Winter, Golder Associates Inc. *[Signature]*

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

INTRODUCTION

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SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
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B09335	09/10/93	SOIL	

Note 1. All samples were analyzed for chloride, fluoride, and sulfate using Method 300.0 (ion chromatography) 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
[Signature] 4/20/94

9113225-1834

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.

9416225-1835

Revised
4/30/94

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9113275-1836

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- 9416225.837
- 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

9/13/2015 18:38

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

DBI 5726716
9/13/25 1840

9473225.1841

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

Parameter	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	---	---	---			
	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
Elberta 3/04/94

000000

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

299-419-95

Date & Time Collected 09/09/93

Category _____

60-62.5'

ANIONS AND WET CHEMISTRY - SOLIDS				
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

Q

FORM 1

94/3225-1842

unified
3/3/94

000010

TMA Inc.

REPORT

Work Order # A3-09-028

Received: 09/14/93

Results by Sample

SAMPLE ID B09333

FRACTION 02E

TEST CODE UCCLPS

NAME Anions in Solids

299-619-97
50-52.5'

Date & Time Collected 09/10/93

Category _____

ANIONS AND WET CHEMISTRY - SOLIDS				
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

Q

FORM 1

94/325-1843

Verified
[Signature]
3/3/94

Received: 09/14/93

TMA Inc.

REPORT

Work Order # A3-09-028

Results by Sample

SAMPLE ID 809336

FRACTION 03C

TEST CODE MCCLPS

NAME Anions in Solids

Date & Time Collected 09/10/93

Category _____

299-619-95
74.8-77.3'

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 1

487-520-116
9/17/93

verified
J. White
3/3/94

Received: 09/15/93

Results by Sample

Analyzed for nitrate + Nitrite - N by Method 353.2 (mod. Sig)

3/3/94

SAMPLE ID <u>B09332</u>	SAMPLE # <u>01</u> FRACTIONS: <u>A</u>
Date & Time Collected <u>09/09/93</u> Category <u>SOIL</u>	
NITR_S <u>2.49</u> < 2.47 mg-N/kg	
mg N/kg	

SAMPLE ID <u>B09333</u>	SAMPLE # <u>02</u> FRACTIONS: <u>A</u>
Date & Time Collected <u>09/10/93</u> Category <u>SOIL</u>	
NITR_S <u>7.43</u>	
mg N/kg	

SAMPLE ID <u>B09336</u>	SAMPLE # <u>03</u> FRACTIONS: <u>A</u>
Date & Time Collected <u>09/10/93</u> Category <u>SOIL</u>	
NITR_S <u><2.49</u>	
mg N/kg	

SAMPLE ID <u>B093360</u>	SAMPLE # <u>03</u> FRACTIONS: <u>B</u>
Date & Time Collected <u>09/10/93</u> Category <u>SOIL</u>	
NITR_S <u><2.49</u>	
mg N/kg	

SAMPLE ID <u>B09336S</u>	SAMPLE # <u>03</u> FRACTIONS: <u>C</u>
Date & Time Collected <u>09/10/93</u> Category <u>SOIL</u>	
NITR_S <u>19.2</u>	
mg N/kg	

SAMPLE ID <u>LCSS</u>	SAMPLE # <u>04</u> FRACTIONS: <u>A</u>
Date & Time Collected <u>not specified</u> Category <u>SOIL</u>	
NITR_S <u>2.02</u>	
mg N/L	

911 3225 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.

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9481-5728-16
9/13/25-1846

9413225.1847

GENERAL CHEMISTRY RESULTS

CASE NO. 09-028

Soil Sample #:

B09332
B09336

B09333

CASE NARRATIVE

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

Maureen Parrish 11/29/93

Maureen Parrish

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) 241 275 1848
 +, 250ml P:CLP; TAL Metals, Hg, Ti B09333
 +, 250ml Gs:VOA CLP
 +, 250ml aG:Semi-VOA CLP
 +, 125ml G:Anions F, Cl, SO₄ (EPA 300.0)
 +, 125ml P/G:Anions NO₂, NO₃ (EPA 353.2)
 +, 125ml G:Cyanide CLP
 +, 125ml Gw:Kerosene (8015M)
 +, 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) Hp-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
 +, 250ml P:CLP; TAL Metals, Hg, Ti B09336
 +, 250ml Gs:VOA CLP
 +, 250ml aG:Semi-VOA CLP
 +, 125ml G:Anions F, Cl, SO₄ (EPA 300.0)
 +, 125ml P/G:Anions NO₂, NO₃ (EPA 353.2)
 +, 125ml G:Cyanide CLP
 +, 125ml Gw:Kerosene (8015M)
 +, 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) Hp-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

3) per 9-10-93
 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) Hp-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: <u>1040</u> <u>John E. Rogers 9-10-93</u>	Received by: <u>ROY T SICKLE</u> <u>Tom T. Sullivan</u>	Date/Time: <u>9-10-93 1040</u>
Relinquished by: <u>ROY T SICKLE</u> <u>Tom T. Sullivan 9-10-93</u>	Received by: <u>H. HARRIS</u> <u>Harris</u>	Date/Time: <u>9-14-93 10:50</u>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method: _____ Disposed by: _____ Date/Time: _____

Comments:

000002A

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS
 Company Contact: L E ROGERS
 Project Designation/Sampling Locations: 200-UP-2
 Ice Chest No.: SML 366
 Bill of Lading/Airbill No.: _____
 Method of Shipment: OVERNIGHT AIR SERVICE
 Shipped to: TMA
 Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE DETECTABLE

Telephone: 376-7690
 Collection Date: 9-9-93
 Field Logbook No.: EFL-1091
 Offsite Property No.: _____

Sample Identification

- 1) 2, 120ml 809332
 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) Hp-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
- 809331 809335
9-10-93
- 2) 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) Hp-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

- 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) Hp-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: <u>1040</u> <u>L E Rogers</u> 9-10-93	Received by: <u>ROYLT SIEPHE</u>	Date/Time: <u>1040</u> <u>9-10-93</u>
Relinquished by: <u>ROYLT SIEPHE</u> <u>1054</u> 9-10-93	Received by: <u>H. NACCISO</u>	Date/Time: <u>9-14-93 10:50</u>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method: _____ Disposed by: _____ Date/Time: _____

Comments: _____

ATTACHMENT 5
DATA VALIDATION SUPPORTING DOCUMENTATION

9413225.1850

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2	DATA PACKAGE: B09332-TMA-611				
VALIDATOR: <i>[Signature]</i>	LAB: TMA		DATE: 03/01/94		
CASE:	SDG: B09332-TMA-611				
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> Anions/IC	<input type="checkbox"/> TOC	<input type="checkbox"/> TOX	<input type="checkbox"/> TPH-418.1	Oil and Grease	Alkalinity
<input type="checkbox"/> Ammonia	<input type="checkbox"/> BOD/COD	<input type="checkbox"/> Chloride	<input type="checkbox"/> Chromium-VI	<input type="checkbox"/> pH	<input checked="" type="checkbox"/> NO ₂ /NO ₃
<input type="checkbox"/> Sulfate	<input type="checkbox"/> TDS	<input type="checkbox"/> TKN	<input type="checkbox"/> Phosphate	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX <i>Soils</i>					
<i>B09332</i>					
<i>B09333</i>					
<i>B09336</i>					

9/1/2025 1851

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: _____

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 CCI 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

9473225.1852

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 notes 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 Bc9332 was corrected from 2.49 mg-N/kg to 2.47 mg-N/kg. See attached laboratory documentation for calculation supporting data and calculation.

[Signature]
3/3/04

9413225.1853

Nitrate + Nitrite - N Raw Data

Result 127

11/11/94
11/11/94
11/11/94
11/11/94
11/11/94
11/11/94
11/11/94
11/11/94
11/11/94
11/11/94

5981-5726/16

$$\frac{21.179}{19.95}$$

106.1%

Sample No.	Sample ID	MA...	mg/L	C.S.D.	Remarks
00103	127		21.179		

Sample B09332 Below

$$0.25 \text{ mg/L} \times \frac{50 \text{ ml}}{5.008 \text{ g}} = 2.47 \text{ mg/kg}$$

Sample No.	Sample ID	MA...	mg/L	C.S.D.	Remarks
00103	127		2.47		

B09332

[Signature]
3/3/94