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22 of 27

9453549D

9452475D

ATTACHMENT 14

Page 1 of (20)

GENERAL GC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418, Filename 9324GC.UP2)

9473225.1907

MEMORANDUM



TO: 200-UP-2 Project QA Record

February 11, 1994

FR: Kenney Louie, Golder Associates Inc. *Kenney Louie*

RE: GENERAL GC DATA VALIDATION SUMMARY FOR
DATA PACKAGE B09324-TMA-592 (923-E418 9324GC.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B09324-TMA-592 prepared by the TMA laboratory. A list of samples validated along with the analyses reported and the method(s) of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09324	9/3/93	SOIL	SEE NOTE 1

Notes:

1. The sample was analyzed for Method 8015M for Kerosene.

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. The laboratory did not provide limits to evaluate precision.

Accuracy. The laboratory did not provide control limits to evaluate accuracy.

Sample Result Verification. All sample results were supported in the raw data.

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

9413225.1908

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data package with a total of 1 determination reported, which was 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. However, precision and accuracy for the sample analysis could not be evaluated because the laboratory did not provide control limits. No qualification of the data was required.

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.

9/13/25.1909

ATTACHMENT 1
GLOSSARY OF DATA REPORTING QUALIFIERS

9/13/25.1910

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9/11/3225.1911
- B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. 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 quantitation 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 reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
 - J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
 - NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
 - UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
 - R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

2161-522616
9/13/25-1912

ATTACHMENT 3
QUALIFIED DATA SUMMARY AND
ANNOTATED LABORATORY RESULTS

9113225.1914

9113225.1915

Validated Data Summary, Data Package: B09324-TMA-592

Parameter	Units	Result	Q
KEROSENE	MG/KG	5.000	U

Sample # B09324
Date 9-3-93
Location 299 U19-95
Type ---

800
9-15-92
008

TMA Inc.

REPORT

Work Order # A3-09-019

Received: 09/09/93

Results by Sample

SAMPLE ID B09324

FRACTION 01J TEST CODE 8015MS NAME EPA 8015M EXTRACT.

Date & Time Collected 09/03/93

Category _____

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL

Date Analyzed: 09/23/93

Dilution factor: 1.00

Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	ND	5.0
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	NA	NA
Hydraulic Range	NA	NA

ND = Not detected at the specified limits

Form 1

916-5725-916

Handwritten signature/initials

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9413225-1917

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 09-019

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : September 08, 1993

1.0 DESCRIPTION OF CASE :

One soil sample was analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons for Kerosene (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>ANALYSIS REQUESTED</u>	<u>MATRIX</u>
B09324	A3-09-019-01A	V	SOIL
B09324 MS	A3-09-019-01B	V	SOIL
B09324 MSD	A3-09-019-01C	V	SOIL
B09324	A3-09-019-01D	SV	SOIL
B09324 MS	A3-09-019-01E	SV	SOIL
B09324 MSD	A3-09-019-01F	SV	SOIL
B09324	A3-09-019-01J	K	SOIL
B09324 MS	A3-09-019-01K	K	SOIL
B09324 MSD	A3-09-019-01L	K	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

9113225-1918

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

In the method blank, SBLK0913S1, Methoxychlor was detected and reported as a Tentatively Identified Compound (TIC). This TIC appeared to be a carryover compound from the Gel Permeation Chromatography (GPC) calibration solution. Methoxychlor was not detected in the other samples.

The matrix spike recovery of 2,4-Dinitrotoluene in sample B09324MS was slightly above the QC limits.

All of the other QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 09/16/93 and was analyzed according to the SW-846 Method 3015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from 200ppm to 2000ppm. The continuing calibration at the 1000ppm level was injected amongst a series of samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the required holding times. Approximately 30 g of each sample was extracted and concentrated to 5 mL.

No Kerosene was detected in any of the samples. Sample 309324 was spiked with Kerosene. The matrix spike recoveries were between 71% and 78%. The blank spike was prepared at the same time, and had an 75% recovery.

All of the QC results were within the limits specified by the SW-846 Method 3015M.

9/16/93 3:25 PM

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth 11/1/93
CLP Program Manager

Widayati 11/1/93
Wida Ang
Organics Supervisor

0261-5225-1920

0000024

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-215
 Bill of Lading/Airbill No. 2536956026
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to TMA
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL)

Telephone 376-7690
 Collection Date 9-3-93
 Field Logbook No. EFL-1091
 Offsite Property No. W93-0-0667-46

Sample Identification

1261-525-1921

- 1) * BOY324
 1,250ml P:CLP;TAL Metals,Hg,Ti
 1,250ml Gs:VOA CLP - 120ML CLP VOA 2 PCTS.
 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,Mn-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
- 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,Mn-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) for 9-3-93
 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,Mn-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>L E Rogers</u> <u>9-7-93</u>	Received by: <u>W. J. Setzer</u> <u>W. J. SETZER</u>	Date/Time: <u>9-7-93</u> <u>0942</u>
Relinquished by: <u>W. J. Setzer</u>	Received by: <u>H. Narciiso</u>	Date/Time: <u>9-8-93</u> <u>1120</u>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

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

A-6000-607 (12/90) (EF) WEF061
 Chain of Custody 120ML
 * 2 PCTS. CLP VOA Rec'd H. Narciiso TMA/Naval 9-30-93

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9113225.1922

GENERAL GC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2	DATA PACKAGE: B09324-TMA-592				
VALIDATOR: K. Lorie	LAB: TMA		DATE: 2-11-94		
CASE:	SDG: B09324-TMA-592				
ANALYSES PERFORMED					
<input type="checkbox"/> 8010	<input checked="" type="checkbox"/> 8015	<input type="checkbox"/> 8020	<input type="checkbox"/> 8021	8140	8141
<input type="checkbox"/> 8150	<input type="checkbox"/> 8151	<input type="checkbox"/> WTPH-HCID	<input type="checkbox"/> WTPH-G	<input type="checkbox"/> WTPH-D	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX: B09324 soil					

9413225-1923

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 GC DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration performed? Yes No N/A

Are %RSD values for calibration or response factors acceptable? Yes No N/A

Comments: _____

3.2 CONTINUING CALIBRATION

Was a continuing calibration check performed? Yes No N/A

Are %D values for calibration or response factors acceptable? Yes No N/A

Comments: _____

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 surrogates analyzed? Yes No N/A

Are surrogate recoveries acceptable? Yes No N/A

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

Are MS/MSD recoveries acceptable? Yes No N/A

Were LCS samples analyzed? Yes No N/A

Are LCS recoveries acceptable? Yes No N/A

9113225.1924

cp/1/1/94

GENERAL GC DATA VALIDATION CHECKLIST

Comments: Spike recovery was considered acceptable (71% (70R was 71%), however the laboratory did not provide control limits for evaluation.

6/21/94 No qualification of the data was required.

6. PRECISION

Are MS/MSD sample RPD values acceptable? Yes No N/A ^{6/21/94}

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

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

Comments: RPD was considered acceptable (71% (RPD was 9%), however the laboratory did not provide control limits for evaluation.

6/21/94 No qualification of the data was made.

7. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? Yes No N/A

Is compound quantitation acceptable? Yes No N/A

Comments: _____

8. REPORTED RESULTS AND DETECTION LIMITS

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

Are all results supported in the raw data? Yes No N/A

Do results meet the CRQLs? Yes No N/A

Comments: _____

9113225.1925

9453549D

~~9452475D~~

ATTACHMENT 10

Page 1 of 20

GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418, Filename TMA592W.UP2)

9473225.1927

MEMORANDUM RECEIVED
FEB 1994
TCO

TO: 200-UP-2 Project QA Record

February 17, 1994

FR: Christina Jensen, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418 TMA592W.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B09324-TMA-592 prepared by the TMA/Skinner & Sherman laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09324	09/03/93	SOIL	SEE NOTE 1

Notes:

1. The sample was analyzed for anions (chloride, fluoride and sulfate) and nitrate+nitrite.

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 Qualiifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualiified 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.

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 one sample was validated in this data package with a total of 4 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.

947 5275 1924

Attachment 1

Glossary of Data Reporting Qualifiers

9143225.1930

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- 9113225-1931
- 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

9413225.1932

Attachment 3

Qualified Data Summary and Annotated Laboratory Reports

9113225.1934

9413225.1935

Validated Data Summary, Data Package: B09324-TMA-592

Parameter	Sampl#	809324	
	Date	9-3-93	
	Location	299-W19-95	
	Type	---	
	Units	Result	Q
CHLORIDE	MG/KG	103.000	
FLUORIDE	MG/KG	1.900	
SULFATE	MG/KG	95.000	
NITRATE/NITRITE	MG-N/KG	2.520	U

9/21/94
10/15/94

800-

000009

TMA Inc.

REPORT

Work Order # A3-09-019

Received: 09/09/93

Results by Sample

SAMPLE ID B09324

FRACTION 016

TEST CODE UCCLPS

NAME Anions in Solids

Date & Time Collected 09/03/93

Category _____

ANIONS AND WET CHEMISTRY - SOLIDS				
<u>ANALYSIS</u>	<u>METHOD</u>	<u>RESULT</u>	<u>UNITS</u>	<u>LIMIT</u>
Chloride	300.0	103	mg/kg	5.0
Fluoride	300.0	1.9	mg/kg	0.5
sulfate	300.0	95	mg/kg	5

FORM I

9113225.1936

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9/21/93

- 009

Received: 09/09/93

Results by Sample

SAMPLE ID <u>B09324</u>	SAMPLE # <u>01</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>09/03/93</u> Category <u>SOIL</u>
NITR_S <u><2.52</u> mg N/kg	

SAMPLE ID <u>B09324</u> DUPL	SAMPLE # <u>01</u> FRACTIONS: <u>B</u>
	Date & Time Collected <u>09/03/93</u> Category <u>SOIL</u>
NITR_S <u><2.44</u> mg N/kg	

SAMPLE ID <u>B09324</u> SPIKE	SAMPLE # <u>01</u> FRACTIONS: <u>C</u>
	Date & Time Collected <u>09/03/93</u> Category <u>SOIL</u>
NITR_S <u>19.1</u> mg N/kg	

SAMPLE ID <u>LCSS</u>	SAMPLE # <u>02</u> FRACTIONS: <u>A</u>
	Date & Time Collected <u>not specified</u> Category <u>SOIL</u>
NITR_S <u>2.06</u> mg N/L	

9113225.1937

Handwritten: 2/14/94



hermo Analytical Inc.

kinner & 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 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.

300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200

Attachment 4

Laboratory Narrative and Chain-of-Custody Documentation

9/14/3225.1938

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-216
 Bill of Lading/Airbill No. 2536956026
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to TMA
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL)

Telephone 376-7690
 Collection Date 9-3-93
 Field Logbook No. EFL-1091
 Offsite Property No. W93-0-0667-46

Sample Identification

1) * 9113225-1939
 1,250ml P:CLP:TAL Metals,Hg,Ti BO9324
 1,250ml Gs:VOA CLP 120 ML CLP VOA 2 PCTS.
 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

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

3) JOR 9-3-93
 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: <u>JORNE. KAGEL</u> <u>9-7-93</u> <u>0940 Hrs</u>	Received by: <u>W. J. SETZER</u> <u>W. J. SETZER</u>	Date/Time: <u>9-7-93</u> <u>0942</u>
Relinquished by: <u>W. J. Setzer</u>	Received by: <u>H. NARCISO</u>	Date/Time: <u>9-8-93</u> <u>11:00</u>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

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

Comments:

GENERAL CHEMISTRY RESULTS

CASE NO. 09-019

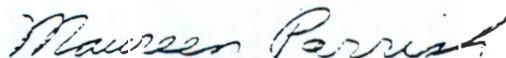
Soil Sample #:

B09324

CASE NARRATIVE

Sample B09324 (A3-09-019-01I) did not exhibit homogeneity. Therefore, the percent RPD for Chloride and Fluoride was 26.0% and 23.5% respectively.

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



Maureen Parrish

Page 4
Received: 09/09/93

Skinner&Sherman REPORT
Test Methodology

Work Order # S3-09-076

TEST CODE NITR S NAME Nitrate/Nitrite in Soils

The sample was extracted with deionized water and analyzed in accordance with Method for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1979, Method 353.2 (modified)

9113225-1941

TMA

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 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.

300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200

9413225.1942

Attachment 5

Data Validation Supporting Documentation

E
5
4
Salinity
NO ₂ /NO ₃

No N/A
No N/A

No N/A

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: IC initial calibration was performed on
8/28/95. Ran a CCV 9/2.8, no qualification
applied.

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

9113225.1943

94535490

94524750

ATTACHMENT 12
Page 1 of 23

METALS DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418, Filename TMA592M.UP2)

94535490

MEMORANDUM



TO: 200-UP-2 Project QA Record

February 15, 1994

FR: Christina Jensen, Golder Associates Inc. *h*

RE: METALS DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09324-TMA-592 (923-E418 TMA592M.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B09324-TMA-592 prepared by the TMA/Sherman & Skinner laboratory. A list of samples validated along with the analyses reported and the methods of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09324	09/03/93	SOIL	SEE NOTE 1

Notes:

1. The sample was analyzed for CLP target analyte list (TAL) metals, cyanide and titanium.

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 with the exception of the deficiencies identified below.

Accuracy. Goals for accuracy were met with the exception of the deficiencies identified below.

Sample Result Verification. All sample results were supported in the raw data.

9413225.1947

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 one sample was validated in this data package with a total of 25 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal workplan objectives of 90%.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- **Positive Blanks.** Sodium and beryllium were detected in the preparation and calibration blanks, respectively. Attachment 2 provides a summary of the samples and data qualifications applied.
- **Negative Blanks.** No negative results were reported for the calibration or preparation blanks.

Spike Sample Recovery

- Spike sample recoveries were unacceptable for antimony. Attachment 2 provides a summary of the samples and data qualifications applied.

Serial Dilution

- Serial dilution percent differences were unacceptable for potassium and zinc. Attachment 2 provides a summary of the samples and data qualifications applied.

9/13/25.1948

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.

9113225-1949

Attachment 1

Glossary of Data Reporting Qualifiers

9/11/3225.1950

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- 9/11/3225-1951
- 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

9/11/3225.1952

Attachment 3

Qualified Data Summary and Annotated Laboratory Reports

9/11/3225.1954

9413225.1955

Validated Data Summary, Data Package: 809324-1HA-592

Parameter	Sampl. Date	809324	
	Location	9-3-93	
	Type	299-W19-95	---
	Units	Result	Q
ALUMINUM	MG/KG	7700.000	
ANTIMONY	MG/KG	3.600	UJ
ARSENIC	MG/KG	6.300	
BARIUM	MG/KG	116.000	
BERYLLIUM	MG/KG	0.420	U
CADMIUM	MG/KG	0.300	U
CALCIUM	MG/KG	9830.000	
CHROMIUM	MG/KG	8.900	
COBALT	MG/KG	14.800	
COPPER	MG/KG	19.700	
IRON	MG/KG	26600.000	
LEAD	MG/KG	6.500	
MAGNESIUM	MG/KG	6430.000	
MANGANESE	MG/KG	465.000	
MERCURY	MG/KG	0.050	U
NICKEL	MG/KG	9.900	
POTASSIUM	MG/KG	1550.000	J
SELENIUM	MG/KG	0.460	U
SILVER	MG/KG	0.900	B
SODIUM	MG/KG	701.000	U
THALLIUM	MG/KG	0.440	U
VANADIUM	MG/KG	60.900	
ZINC	MG/KG	53.100	J
CYANIDE	MG/KG	0.490	U
TITANIUM	MG/KG	2020.000	

600
 10/10/94

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B09324

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D0-0108

Lab Code: SKINER

Case No.: N3-09-022SAS No.:

SDG No.: B09324

Matrix (soil/water): SOIL

Lab Sample ID: 09074-015

Level (low/med): LOW

Date Received: 09/09/93

* Solids: 94.7

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

9/13/25.1956

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7700			P
7440-36-0	Antimony	3.6	U	N	P
7440-38-2	Arsenic	6.3			P
7440-39-3	Barium	116			P
7440-41-7	Beryllium	0.42	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	9830			P
7440-47-3	Chromium	8.9			P
7440-48-4	Cobalt	14.8			P
7440-50-3	Copper	19.7			P
7439-89-6	Iron	26600			P
7439-92-1	Lead	6.5			P
7439-95-4	Magnesium	5430			P
7439-96-5	Manganese	463			P
7439-97-6	Mercury	0.05	U		P
7440-02-0	Nickel	9.9			P
7440-09-7	Potassium	1550			P
7782-49-2	Selenium	0.16	U		P
7440-22-4	Silver	0.90	U		P
7440-23-5	Sodium	701	U		P
7440-28-0	Thallium	0.44	U		P
7440-62-2	Vanadium	50.9			P
7440-66-6	Zinc	33.1	U		P
	Cyanide	0.49	U		CA
7440-32-6	Titanium	2020			P

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:
STONES

Verified

9/21/94

2

Attachment 4

Laboratory Narrative and Chain-of-Custody Documentation

9M3225.1957

TMA

Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.

300 Second Avenue

Post Office Box 521

Waltham, MA 02254-0521

(617) 890-7200

FAX (617) 890-3883

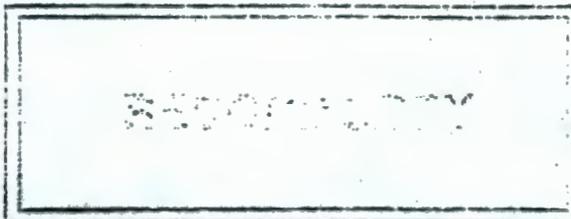
October 8, 1993

TMA/NORCAL

2030 Wright Avenue

Richmond, CA 94804

Attention: Dan Stuermer



Quality Control Narrative

Scope

One (1) soil sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on September 9, 1993 from TMA/Norcal. The sample was analyzed for the USEPA CLP Target Analyte List metals, titanium and cyanide. The analysis were performed under TMA/Skinner and Sherman work order S309074.

Methodology

The sample was prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02.

Discussion

All quality control requirements were met for the samples with the following exceptions:

The matrix spike recovery for antimony exceeded the control limit requirements.

The ICP serial dilution for zinc exceeded the control limit requirement.

Please feel free to call if there are any questions concerning this package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

Steven Provencal
Steven R. Provencal
Lead Chemist

8561-5728-116

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 9-3-93

Ice Chest No. SMI-218

Field Logbook No. EFL-1091

Bill of Lading/Airbill No. 2536956026

Offsite Property No. W93-0-0667-46

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL)

Sample Identification

1) *RO9324*
 * 1,250ml P:CLP:TAL Metals,Hg,Ti
 1,250ml Gs:VOA CLP - 120 ML CLP VOA 2 PCTS.
 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

9/13/25, 1959
6561-5226116

2) 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

3) *for 9-3-93*
 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) 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: <u>L E Rogers</u> <u>9-7-93</u>	Received by: <u>W. J. Setzer</u> <u>W. J. SETZER</u> <u>9-7-93</u> <u>0942</u>
Relinquished by: <u>W. J. Setzer</u>	Received by: <u>H. Narciiso</u> <u>9-8-93</u> <u>11:00</u>
Relinquished by:	Received by:
Relinquished by:	Received by:

Final Sample Disposition

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

A-6000-407 (12/90) (EF) WEF061
 Chain of Custody 120 ML
 * 2 PCTS CLP VOA Rec'd H. Narciiso TMA/Non-CAL 9-8-93 -013

Attachment 5

Data Validation Supporting Documentation

09/11/3225-1960

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	<u>D</u>	E
PROJECT: 200 UP2	DATA PACKAGE: 809324-TWA-592				
VALIDATOR: P. JENSEN	LAB: TWA/NORCAL	DATE: 2/14/94			
CASE: N3-09-022	SDG: 809324				
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> CLP/ICP, Ti	<input type="checkbox"/> CLP/GFAA	<input checked="" type="checkbox"/> CLP/Hg	<input checked="" type="checkbox"/> CLP/Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SW-846/ICP	<input type="checkbox"/> SW-846/GFAA	<input type="checkbox"/> SW-846/Hg	<input type="checkbox"/> SW-846 Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX	Soil / 809324				

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: _____

1961 5725 1961

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

- Were initial calibrations performed on all instruments? Yes No N/A
- Are initial calibrations acceptable? Yes No N/A
- Are ICP interference checks acceptable? Yes No N/A
- Were ICV and CCV checks performed on all instruments? Yes No N/A
- Are ICV and CCV checks acceptable? Yes No N/A

Comments: See pg 2/15/94

4. BLANKS

- Were ICB and CCB checks performed for all applicable analyses? Yes No N/A
- Are ICB and CCB results acceptable? Yes No N/A
- Were preparation blanks analyzed? Yes No N/A
- Are preparation 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: Sodium and potassium were detected in the
PBLK and CCB results associated with it.

5. ACCURACY

- Were spike samples analyzed? Yes No N/A
- Are spike sample recoveries acceptable? Yes No N/A
- Were laboratory control samples (LCS) analyzed? Yes No N/A
- Are LCS recoveries acceptable? Yes No N/A

Comments: _____

9413225.1962

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

- Were laboratory duplicates analyzed? Yes No N/A
- Are laboratory duplicate samples RPD values acceptable? Yes No N/A
- Were ICP serial dilution samples analyzed? Yes No N/A
- Are ICP serial dilution %D 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

Comments: The ICP Serial dilution for ~~K~~ and Zn were
10.3 and 14.9 %D and sample concentrations > 50
the IDL. Sample B09324 qualified as 1.

7. FURNACE AA QUALITY CONTROL

- Were duplicate injections performed as required? Yes No N/A
- Are duplicate injection %RSD values acceptable? Yes No N/A
- Were analytical spikes performed as required? Yes No N/A
- Are analytical spike recoveries acceptable? Yes No N/A
- Was MSA performed as required? Yes No N/A
- Are MSA results acceptable? Yes No N/A

Comments: _____

8. REPORTED RESULTS AND DETECTION LIMITS

- Are results reported for all requested analyses? Yes No N/A
- Are all results supported in the raw data? Yes No N/A
- Are results calculated properly? Yes No N/A
- Do results meet the CRDLs? Yes No N/A

Comments: _____

9/13/25.1963

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D0-0108

Lab Code: SKINER

Case No.: N3-09-022SAS No.:

SDG No.: B09324

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

9443225-1966

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Aluminum	22.8	U	22.8	U	22.8	U	22.8	U	4.724	B	P
Antimony	17.9	U	17.9	U	17.9	U	17.9	U	3.580	U	P
Arsenic	1.7	U	1.7	U	1.7	U	1.7	U	0.340	U	P
Barium	1.0	U	1.2	B	1.0	U	101.5	B	0.352	B	P
Beryllium	0.4	U	0.4	B	0.4	B	0.4	B	0.080	U	P
Cadmium	1.5	U	1.5	U	1.5	U	1.5	U	0.300	U	P
Calcium	-112.7	B	-83.6	B	-105.1	B	-70.5	B	100.628	B	P
Chromium	-2.0	B	1.8	U	1.8	U	1.8	U	0.360	U	P
Cobalt	1.5	U	1.5	U	1.5	U	1.5	U	0.300	U	P
Copper	18.3	B	13.1	B	6.9	B	10.1	B	3.194	B	P
Iron	-6.0	B	8.1	B	17.1	B	9.1	B	14.502	B	P
Lead	1.1	U	1.1	U	1.1	U	1.1	U	0.294	B	P
Magnesium	26.6	U	34.0	B	26.6	U	26.6	U	22.792	B	P
Manganese	0.6	U	1.0	B	1.5	B	0.7	B	0.468	B	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.050	U	CV
Nickel	3.7	U	3.7	U	3.7	U	3.7	U	0.740	U	P
Potassium	35.5	U	35.5	U	35.5	U	35.5	U	23.890	B	P
Selenium	2.3	U	2.3	U	2.3	U	2.3	U	0.460	U	P
Silver	3.4	U	3.4	U	3.4	U	3.4	U	0.580	U	P
Sodium	37.0	U	38.6	B	39.3	B	37.0	U	373.420	B	P
Thallium	2.2	U	2.2	U	2.2	U	2.2	U	0.440	U	P
Vanadium	2.3	U	2.3	U	2.3	U	2.3	U	0.460	U	P
Zinc	7.2	B	4.1	U	4.1	U	4.1	U	3.640	B	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	CA
Titanium	1.1	U	1.5	B	2.5	B	1.1	U	0.220	U	P

604324

Ph is a negative value, Mg is a positive value for the prep blank

6214144

~~111~~ 6

WESTINGHOUSE/HANFORD

5A

SAMPLE NUMBER:

SPIKE SAMPLE RECOVERY

B09324S

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D0-0108

Lab Code: SKINER

Case No.: N3-09-022SAS No.:

SDG No.: B09324

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 94.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

9/13/25, 1967

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony	75-125	51.8669	3.5664 U	105.60	49.1	N	P
Arsenic	75-125	393.3897	6.2639	422.39	91.7		P
Barium	75-125	582.5766	116.0507	422.39	110.4		P
Beryllium	75-125	11.0623	0.4204 B	10.56	100.3		P
Cadmium	75-125	9.1193	0.2989 U	10.56	86.4		P
Calcium							NR
Chromium	75-125	51.3812	8.9259	42.24	100.5		P
Cobalt	75-125	118.5090	14.7516	105.60	98.3		P
Copper	75-125	77.7402	19.7067	52.80	109.9		P
Iron							NR
Lead	75-125	99.1193	6.4962	105.60	87.7		P
Magnesium							NR
Manganese		565.0053	464.3642	105.60	94.3		P
Mercury	75-125	0.5807	0.0480 U	0.53	109.6		CV
Nickel	75-125	111.5248	9.3962	105.60	96.2		P
Potassium							NR
Selenium	75-125	376.4308	0.4382 U	422.39	89.1		P
Silver	75-125	12.3449	0.3986 B	10.56	110.3		P
Sodium							NR
Thallium	75-125	380.9926	0.4383 U	422.39	90.2		P
Vanadium	75-125	164.2999	50.8774	105.60	97.9		P
Zinc	75-125	153.1404	53.0753	105.60	94.8		P
Cyanide	75-125	27.1257	0.4934 U	26.40	102.7		CA
Titanium		2167.8986	2020.6810	105.60	139.4		P

Comments:

Sp sample: anal B.I.T.

9/21/67

021

WESTINGHOUSE/HANFORD

9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

B09324L

Lab Name: SKINNER & SHERMAN LABS.

Contract: 68-D0-0108

Lab Code: SKINER

Case No.: N3-09-022SAS No.:

SDG No.: B09324

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	38650.00		36483.00		5.6		P
Antimony	17.90	U	89.50	U			P
Arsenic	31.44		33.34	B	6.0		P
Barium	582.47		547.80	B	6.0		P
Beryllium	2.11	B	2.00	U	100.0		P
Cadmium	1.50	U	7.50	U			P
Calcium	49324.00		47740.00		3.2		P
Chromium	44.80		42.20	B	5.8		P
Cobalt	74.04		70.15	B	5.3		P
Copper	98.91		107.45	B	8.6		P
Iron	133570.00		130290.00		2.5		P
Lead	32.60		33.77		3.6		P
Magnesium	32291.00		31044.00		3.9		P
Manganese	2333.20		2257.10		3.3		P
Mercury							NR
Nickel	49.57		51.05	B	2.3		P
Potassium	7761.00		6960.00	B	10.3		P
Selenium	2.30	U	11.50	U			P
Silver	4.51	B	17.00	U	100.0		P
Sodium	3513.40	B	3197.90	B	9.1		P
Thallium	2.20	U	11.00	U			P
Vanadium	305.55		289.70		5.2		P
Zinc	266.39		306.00		14.9	E	P
Titanium	10142.00		9427.50		7.0		P

B09324L

Handwritten note: K and Zn qualified J in B09324

Handwritten date: 5/21/94

~~15~~

Handwritten date: 5/21/94

Handwritten number: 077

9453549D

~~9452475B~~

ATTACHMENT 13

Page 1 of 25

SEMIVOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418, Filename 592SVOA.UP2)

9473225-1969

MEMORANDUM



TO: 200-UP-2 Project QA Record

February 7, 1994

FR: Kenney Louie, Golder Associates Inc. *Kenney Louie*

RE: SEMIVOLATILE ORGANIC ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B09324-TMA-592 (923-E418 592SVOA.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B09324-TMA-592 prepared by the TMA/ARLI laboratory. A list of samples validated along with the analyses reported and the method(s) of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09324	9/03/93	SOIL	SEE NOTE 1

Notes:

1. All samples were analyzed for Semivolatile Organic Analysis only.

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 with the exception of the deficiencies identified below.

Sample Result Verification. All sample results were supported in the raw data.

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

9413225-1970

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data package with a total of 64 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

This section of the memo lists minor deficiencies identified as a result of the data validation. Attachment 5 includes a checklist which summarizes the results the data validation on all evaluation categories.

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Di-n-butylphthalate and Bis(2-Ethylhexyl)phthalate were detected in the laboratory blank. Attachment 2 provides a summary of the samples and data qualification applied.
- Seven tentatively identified compounds (TICs) were detected in the laboratory blank. Attachment 2 provides a summary of the samples and data qualification applied.

Spike Sample Recovery

- Matrix spike sample recovery was unacceptable for 2,4-Dinitrotoluene. Attachment 2 provides a summary of the sample and no data qualification applied. The target compound was a non-detect in the sample.

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.

9/13/25, 1971

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9/14 3225.1972

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9/11/3225.1973
- B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. 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 quantitation 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 reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
 - J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
 - NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
 - UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
 - R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9413225.1974

ATTACHMENT 3
QUALIFIED DATA SUMMARY AND
ANNOTATED LABORATORY RESULTS

9/11/3225.1976

9413225.1977

Validated Data Summary, Data Package: B09324-TMA-592

Parameter	Sample Date Location Type	B09324 9-3-93 299-W19-95 14.5 - 15.5	
	Units	Result	Q
PHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U
2-CHLOROPHENOL	UG/KG	340.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U
2-METHYLPHENOL	UG/KG	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U
4-METHYLPHENOL	UG/KG	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U
HEXACHLOROETHANE	UG/KG	340.000	U
NITROBENZENE	UG/KG	340.000	U
ISOPHORONE	UG/KG	340.000	U
2-NITROPHENOL	UG/KG	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U
NAPHTHALENE	UG/KG	340.000	U
4-CHLOROANILINE	UG/KG	340.000	U
HEXACHLOROBTADIENE	UG/KG	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	830.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U
2-NITROANILINE	UG/KG	830.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U
ACENAPHTHYLENE	UG/KG	340.000	U
3-NITROANILINE	UG/KG	830.000	U
ACENAPHTHENE	UG/KG	340.000	U
2,4-DINITROPHENOL	UG/KG	830.000	U
4-NITROPHENOL	UG/KG	830.000	U
DIBENZOFURAN	UG/KG	340.000	U

800
 verified
 10/10/99

9413225.1978

Validated Data Summary, Data Package: B09324-TMA-592

Parameter	Sample		
	Date	Location	Type
	B09324	9-3-93	299-U19-95
			14.5 - 15.5
Parameter	Units	Result	Q
2,4-DINITROTOLUENE	UG/KG	340.000	U
2,6-DINITROTOLUENE	UG/KG	340.000	U
DIETHYLPHTHALATE	UG/KG	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U
FLUORENE	UG/KG	340.000	U
4-NITROANILINE	UG/KG	830.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	830.000	U
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U
HEXACHLOROBENZENE	UG/KG	340.000	U
PENTACHLOROPHENOL	UG/KG	830.000	U
PHENANTHRENE	UG/KG	340.000	U
ANTHRACENE	UG/KG	340.000	U
CARBAZOLE	UG/KG	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	290.000	U
FLUORANTHENE	UG/KG	340.000	U
PYRENE	UG/KG	340.000	U
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	340.000	U
BENZO(A)ANTHRACENE	UG/KG	340.000	U
BIS(2-EIHYLHEXYL)PHTHALATE	UG/KG	58.000	U
CHRYSENE	UG/KG	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	340.000	U
BENZO(K)FLUORANTHENE	UG/KG	340.000	U
BENZO(A)PYRENE	UG/KG	340.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U

600

000082

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09324

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-01D

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30927S03

Level: (low/med) LOW Date Received: 09/08/93

% Moisture: 5 decanted: (Y/N) N Date Extracted: 09/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 09/27/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

EPC Cleanup: (Y/N) Y pH: 8.8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl) Ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-Di-n-Propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy) Methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-3	4-Chloroaniline	340	U
87-58-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-Methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	830	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
99-09-2	3-Nitroaniline	830	U
83-32-9	Acenaphthene	340	U
51-28-5	2,4-Dinitrophenol	830	U

FORM I SV-1

Verified 3/90
Klein 0196
2-4-94

9/13/25-1979

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000083
EPA SAMPLE NO.

B09324

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-01D

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30927S03

Level: (low/med) LOW Date Received: 09/08/93

% Moisture: 5 decanted: (Y/N) N Date Extracted: 09/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 09/27/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
37-86-5	Pentachlorophenol	330	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
36-74-8	Carbazole	340	U
84-74-2	Di-n-Butylphthalate	290	340 U
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
35-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)Anthracene	340	U
117-81-7	bis(2-Ethylhexyl) Phthalate	58	340 U
218-01-9	Chrysene	340	U
117-84-0	Di-n-Octyl Phthalate	340	U
205-99-2	Benzo(b) Fluoranthene	340	U
207-08-9	Benzo(k) Fluoranthene	340	U
50-32-8	Benzo(a) Pyrene	340	U
193-39-5	Indeno(1,2,3-cd) Pyrene	340	U
53-70-3	Dibenz(a,h) Anthracene	340	U
191-24-2	Benzo(g,h,i) Perylene	340	U

(1) - Cannot be separated from Diphenylamine

Verified
K. Lewis 3/90
2-4-94 4011

9443225.1980

000084

EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B09324

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-01D

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 30927S03

Level: (low/med) LOW Date Received: 09/08/93

% Moisture: 5 decanted: (Y/N) N Date Extracted: 09/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 09/27/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

EPC Cleanup: (Y/N) Y pH: 8.8

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	6.32	65000	BTU
2.	UNKNOWN HYDROCARBON	7.48	830	BTU
3.	UNKNOWN HYDROCARBON	8.80	100	BTU
4.	PROPANOIC ACID ESTER ISOMER	18.18	280	BTU
5.	UNKNOWN ALKANE	29.18	170	JN
6.	UNKNOWN ALKANE	31.88	280	JN

Verified
K. Lawrence
2-4-94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9/11/3225.1982

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 09-019

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : September 08, 1993

1.0 DESCRIPTION OF CASE :

One soil sample was analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons for Kerosene (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>ANALYSIS REQUESTED</u>	<u>MATRIX</u>
B09324	A3-09-019-01A	V	SOIL
B09324 MS	A3-09-019-01B	V	SOIL
B09324 MSD	A3-09-019-01C	V	SOIL
B09324	A3-09-019-01D	SV	SOIL
B09324 MS	A3-09-019-01E	SV	SOIL
B09324 MSD	A3-09-019-01F	SV	SOIL
B09324	A3-09-019-01J	K	SOIL
B09324 MS	A3-09-019-01K	K	SOIL
B09324 MSD	A3-09-019-01L	K	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

9/13/25.1983

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

In the method blank, SBLK0913S1, Methoxychlor was detected and reported as a Tentatively Identified Compound (TIC). This TIC appeared to be a carryover compound from the Gel Permeation Chromatography (GPC) calibration solution. Methoxychlor was not detected in the other samples.

The matrix spike recovery of 2,4-Dinitrotoluene in sample B09324MS was slightly above the QC limits.

All of the other QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 09/16/93 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from 200ppm to 2000ppm. The continuing calibration at the 1000ppm level was injected amongst a series of samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the required holding times. Approximately 20 g of each sample was extracted and concentrated to 5 mL.

No Kerosene was detected in any of the samples. Sample B09324 was spiked with Kerosene. The matrix spike recoveries were between 71% and 78%. The blank spike was prepared at the same time, and had an 75% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

7/13/25.1984

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth

Nicole Roth 11/1/93
CLP Program Manager

Widayati

Wida Ang 11/1/93
Organics Supervisor

94/3225-1985

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-210
 Bill of Lading/Airbill No. 2536956026
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to TMA
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL)

Telephone 376-7690
 Collection Date 9-3-93
 Field Logbook No. EFL-1091
 Offsite Property No. W93-0-0667-46

Sample Identification

9/13/25, 1986

- 1) *BO9324*
- * 1,250ml P:CLP;TAL Metals,Hg,Ti
 - 1,250ml Gs:VOA CLP - 120 ML CLP VOA 2 PCTS.
 - 1,250ml nG:Semi-VOA CLP
 - 1,125ml G:Anions F,Cl,S04 (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) 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 P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml nG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,S04 (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) 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

- 3) *for 9-3-93*
- 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,S04 (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) 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: <i>J. E. Rogers</i>	Date/Time: <i>9-7-93 0942</i>	Received by: <i>W. T. Setzer</i>	Date/Time: <i>9-7-93 0942</i>
Relinquished by: <i>W. T. Setzer</i>	Date/Time: <i>9-8-93 11:00</i>	Received by: <i>H. Narziso</i>	Date/Time: <i>9-8-93 11:00</i>
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Final Sample Disposition

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

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

94M3225.1987

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2			DATA PACKAGE: B09324-TMA-592		
VALIDATOR: K. Louie		LAB: TMA		DATE:	
CASE:			SDG: B09324-TMA-592		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP Volatiles	<input type="checkbox"/> SW-846 8240 (cap column)	<input type="checkbox"/> SW-846 8260 (packed column)	<input checked="" type="checkbox"/> CLP Semivolatiles	<input type="checkbox"/> SW-846 8270 (cap column)	<input type="checkbox"/> SW-846 (packed column)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX: B09324 / soil					

9/11/3225.1988

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: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? Yes No N/A

Are initial calibrations acceptable? Yes No N/A

Are continuing calibrations acceptable? Yes No N/A

Klein 2-8-74

Comments: _____

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 surrogates/System Monitoring Compounds analyzed? Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

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

Are MS/MSD results acceptable? Yes No N/A *Klein*

Comments: _____

9/13/25.1989

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD 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

Comments: _____

7. SYSTEM PERFORMANCE

Were internal standards analyzed? Yes No N/A

Are internal standard areas acceptable? Yes No N/A

Are internal standard retention times acceptable? Yes No N/A

Comments: _____

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? Yes No N/A

Is compound quantitation acceptable? Yes No N/A

Comments: _____

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

Are all results supported in the raw data? Yes No N/A

Do results meet the CRQLs? Yes No N/A

Has the laboratory properly identified and coded all TIC? Yes No N/A

Comments: _____

9/13/25.1990

000095

EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK0913S1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-BLK

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 30927S02

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 09/13/93

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 09/27/93

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	6.25	54000	J
2.	UNKNOWN HYDROCARBON	6.40	100	J
3.	UNKNOWN HYDROCARBON	7.47	660	J
4.	UNKNOWN HYDROCARBON	8.78	66	J
5.	PROPANOIC ACID ESTER ISOMER	18.17	300	J
6.	HEXANEDIOIC ACID ESTER ISOME	26.23	100	J
7. 73-43-5	METHOXYCHLOR	27.30	130	JN

9453549.D

~~9452475.D~~

ATTACHMENT 11

Page 1 of 22

VOLATILE ORGANIC CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09324-TMA-592 (923-E418, Filename 592VOA.UP2)

9453225.1994

MEMORANDUM



TO: 200-UP-2 Project QA Record

February 7, 1994

FR: Kenney Louie, Golder Associates Inc.

RE: VOLATILE ORGANIC ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B09324-TMA-592 (923-E418 592VOA.UP2)

INTRODUCTION

This memo presents the results of data validation on data package B09324-TMA-592 prepared by the TMA/ARLI 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
B09324	9/03/93	SOIL	SEE NOTE 1

Notes:

- All samples were analyzed for CLP volatile target compound list (TCL) compounds.

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.

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 one sample was validated in this data package with a total of 33 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90%.

9443225.1995

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

This section of the memo lists minor deficiencies identified as a result of the data validation. Attachment 5 includes a checklist which summarizes the results the data validation on all evaluation categories.

The following minor deficiencies were identified during data validation which required qualification of data.

Laboratory Blanks

- Methylene Chloride was detected in the laboratory blank. Attachment 2 provides a summary of the samples and data qualification applied.
- Toluene was detected in the laboratory blank at a concentration less than the instrument detection limit (IDL) (0.717) and was therefore reported as undetected by the laboratory therefore no qualification of the data can be made. Toluene was also detected in the sample B09324 at 2J ug/kg which may be laboratory contamination due to the low concentration reflected in the associated blank.

REFERENCES

WHC 1993, 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.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9/13/25.1997

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9/11/3225.1998
- B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. 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 quantitation 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 reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
 - J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
 - NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
 - UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
 - R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9413225.1999

ATTACHMENT 3
QUALIFIED DATA SUMMARY AND
ANNOTATED LABORATORY RESULTS

9473225.2001

9413225.2002

Validated Data Summary, Data Package: B09324-TMA-592

Parameter	Sample#	B09324	
	Date	9-3-93	
	Location	299-W19-95	
	Depth	14.5 - 15.5	
	Units	Result	Q
CHLOROMETHANE	UG/KG	11.000	U
BROMOMETHANE	UG/KG	11.000	U
VINYL CHLORIDE	UG/KG	11.000	U
CHLOROETHANE	UG/KG	11.000	U
METHYLENE CHLORIDE	UG/KG	11.000	U
ACETONE	UG/KG	8.000	J
CARBON DISULFIDE	UG/KG	11.000	U
1,1-DICHLOROETHENE	UG/KG	11.000	U
1,1-DICHLOROETHANE	UG/KG	11.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	11.000	U
CHLOROFORM	UG/KG	11.000	U
1,2-DICHLOROETHANE	UG/KG	11.000	U
2-BUTANONE	UG/KG	11.000	U
1,1,1-TRICHLOROETHANE	UG/KG	11.000	U
CARBON TETRACHLORIDE	UG/KG	11.000	U
BROMODICHLOROMETHANE	UG/KG	11.000	U
1,2-DICHLOROPROPANE	UG/KG	11.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	11.000	U
TRICHLOROETHENE	UG/KG	11.000	U
DIBROMOCHLOROMETHANE	UG/KG	11.000	U
1,1,2-TRICHLOROETHANE	UG/KG	11.000	U
BENZENE	UG/KG	11.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	11.000	U
BROMOFORM	UG/KG	11.000	U
4-METHYL-2-PENTANONE	UG/KG	2.000	J
2-HEXANONE	UG/KG	3.000	J
TETRACHLOROETHENE	UG/KG	11.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	11.000	U
TOLUENE	UG/KG	2.000	J
CHLOROBENZENE	UG/KG	11.000	U
ETHYLBENZENE	UG/KG	11.000	U
STYRENE	UG/KG	11.000	U
XYLENES (TOTAL)	UG/KG	11.000	U

Verified
 0084
 18084

000080

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09324

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30915R12

Level: (low/med) LOW Date Received: 09/08/93

% Moisture: not dec. 5 Date Analyzed: 09/15/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	-----Chloromethane	11	U
74-83-9	-----Bromomethane	11	U
75-01-4	-----Vinyl Chloride	11	U
75-00-3	-----Chloroethane	11	U
75-09-2	-----Methylene Chloride	11 11	BU
67-64-1	-----Acetone	8	J
75-15-0	-----Carbon Disulfide	11	U
75-35-4	-----1,1-Dichloroethene	11	U
75-34-3	-----1,1-Dichloroethane	11	U
540-59-0	-----1,2-Dichloroethene (total)	11	U
67-66-3	-----Chloroform	11	U
107-06-2	-----1,2-Dichloroethane	11	U
78-93-3	-----2-Butanone	11	U
71-55-6	-----1,1,1-Trichloroethane	11	U
56-23-5	-----Carbon Tetrachloride	11	U
75-27-4	-----Bromodichloromethane	11	U
78-87-5	-----1,2-Dichloropropane	11	U
10061-01-5	-----cis-1,3-Dichloropropene	11	U
79-01-6	-----Trichloroethene	11	U
124-48-1	-----Dibromochloromethane	11	U
79-00-5	-----1,1,2-Trichloroethane	11	U
71-43-2	-----Benzene	11	U
10061-02-6	-----trans-1,3-Dichloropropene	11	U
75-25-2	-----Bromoform	11	U
108-10-1	-----4-Methyl-2-Pentanone	2	J
591-78-6	-----2-Hexanone	3	J
127-18-4	-----Tetrachloroethene	11	U
79-34-5	-----1,1,2,2-Tetrachloroethane	11	U
108-88-3	-----Toluene	2	J
108-90-7	-----Chlorobenzene	11	U
100-41-4	-----Ethylbenzene	11	U
100-42-5	-----Styrene	11	U
1330-20-7	-----Xylene (total)	11	U

FORM I VOA

Verified
Klowe
2-21-94
3/90

9413225.2003

000081

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09324

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09019 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A309019-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 30915R12

Level: (low/med) LOW Date Received: 09/08/93

% Moisture: not dec. 5 Date Analyzed: 09/15/93

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

*Verified
Klein
2-4-94*

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

947325.2005

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 9-3-93

Ice Chest No. SML-215 Field Logbook No. EFL-1091

Bill of Lading/Airbill No. 2536956026 Offsite Property No. W93-0-0667-46

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL)

Sample Identification

9/13/25-2006

- 1) *BO9324*
- * 1,250ml P:CLP;TAL Metals,Hg,Ti
 - 1,250ml Gs:VOA CLP - 120 ML CLP VOA 2 POTS.
 - 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 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
-
- 3) *for 9-3-93*
- 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) 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: <u>L E ROGERS</u> <i>9-7-93</i> <i>0940 Hrs</i>	Received by: <u>W. V. SETZER</u> <i>WV SETZER</i>	Date/Time: <u>9-7-93</u> <i>0942</i>
Relinquished by: <u>W. V. SETZER</u>	Received by: <u>H. NARCISO</u>	Date/Time: <u>9-8-93</u> <i>11:20</i>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

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

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 09-019

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : September 08, 1993

1.0 DESCRIPTION OF CASE :

One soil sample was analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons for Kerosene (K) were analyzed according to the SW-846 Method 8015M.

2.0 SAMPLE LIST :

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>ANALYSIS REQUESTED</u>	<u>MATRIX</u>
B09324	A3-09-019-01A	V	SOIL
B09324 MS	A3-09-019-01B	V	SOIL
B09324 MSD	A3-09-019-01C	V	SOIL
B09324	A3-09-019-01D	SV	SOIL
B09324 MS	A3-09-019-01E	SV	SOIL
B09324 MSD	A3-09-019-01F	SV	SOIL
B09324	A3-09-019-01J	K	SOIL
B09324 MS	A3-09-019-01K	K	SOIL
B09324 MSD	A3-09-019-01L	K	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All BFB tunes were injected directly into the GC/MS instrument.

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3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

In the method blank, SBLK0913S1, Methoxychlor was detected and reported as a Tentatively Identified Compound (TIC). This TIC appeared to be a carryover compound from the Gel Permeation Chromatography (GPC) calibration solution. Methoxychlor was not detected in the other samples.

The matrix spike recovery of 2,4-Dinitrotoluene in sample B09324MS was slightly above the QC limits.

All of the other QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 09/16/93 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from 200ppm to 2000ppm. The continuing calibration at the 1000ppm level was injected amongst a series of samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the required holding times. Approximately 20 g of each sample was extracted and concentrated to 5 mL.

No Kerosene was detected in any of the samples. Sample B09324 was spiked with Kerosene. The matrix spike recoveries were between 71% and 78%. The blank spike was prepared at the same time, and had an 75% recovery.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

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We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth

Nicole Roth "1/1/93
CLP Program Manager

Widayati

Wida Ang "1/1/93
Organics Supervisor

9473225.2009

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9/13/25.2010

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	<u>D</u>	E
PROJECT:	200-UP-2		DATA PACKAGE: B09324-TMA-592		
VALIDATOR:	KLouie	LAB: TMA	DATE: 2-4-94		
CASE:	SDG: B0934-TMA-592				
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> CLP Volatiles	<input type="checkbox"/> SW-846 8240 (cap column)	<input type="checkbox"/> SW-846 8260 (packed column)	<input type="checkbox"/> CLP Semivolatiles	<input type="checkbox"/> SW-846 8270 (cap column)	<input type="checkbox"/> SW-846 (packed column)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX	B09324 Soil				

9/13/25.2011

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: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

- Is the GC/MS tuning/performance check acceptable? Yes No N/A
- Are initial calibrations acceptable? Yes No N/A
- Are continuing calibrations acceptable? Yes No N/A

Comments: _____

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 surrogates/System Monitoring Compounds analyzed? Yes No N/A
- Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A
- Were MS/MSD samples analyzed? Yes No N/A
- Are MS/MSD results acceptable? Yes No N/A

Comments: _____

9/11/3225.2012

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

- Are MS/MSD 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

Comments: _____

7. SYSTEM PERFORMANCE

- Were internal standards analyzed? Yes No N/A
- Are internal standard areas acceptable? Yes No N/A
- Are internal standard retention times acceptable? Yes No N/A

Comments: _____

8. COMPOUND IDENTIFICATION AND QUANTITATION

- Is compound identification acceptable? Yes No N/A
- Is compound quantitation acceptable? Yes No N/A

Comments: _____

9. REPORTED RESULTS AND QUANTITATION LIMITS

- Are results reported for all requested analyses? Yes No N/A
- Are all results supported in the raw data? Yes No N/A
- Do results meet the CRQLs? Yes No N/A
- Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments: _____

9/13/25.2013

