START 9613428.0368

3561-SCU-111

179
2

0043946

DON'T SAY IT --- *Write It!*

DATE: September 1, 1993

TO: File 3561-SCU-111

FROM: Linda J. Dickerson H4-19

Telephone: 372-2895

cc: 3395-SCU-078

SUBJECT: Validation Summary Final Report

Final validation report for this package is filed with 3395-SCU-078

1 MAY 1996
RECEIVED
EDMC

9613428.0569

SDG Memo/Sample Summary

Client Name: WESTINGHOUSE HANFORD CO.
Date: 16 Mar 1993
Project Name: 92-451
Update No.:
SDG No.: 3561
Work Order No.: 32359-79
Project Manager: J. DEWALD
Mail Date:

Client Samp No.	S-Cubed Samp No.	Date Rcvd	Date Samp	Matrix	ANIONS	CRVI	FURNILM	HERBSTD	HGILM	ICPILM	NO3/NO2	OCPOLM	OPP8140	SVOAOLM	TRPH	VOAOLM
B07KR7	3561-01	2-20-1993	2-18-1993	SOIL	X	X	X	X	X	X	X	X	X	X	X	X
B07KR7MS	3561-01MS	2-20-1993	2-18-1993	SOIL	X	X	X	X	X	X	X	X	X	X	X	X
B07KR7MSD	3561-01MSD	2-20-1993	2-18-1993	SOIL				X				X	X	X		X
B07KR7REP	3561-01REP	2-20-1993	2-18-1993	SOIL	X	X	X		X	X	X				X	

(X) = Non-Billable Sample

SC-10, Rev 8/92

MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project: 92-451
Reference No.: 32359-79
Client: WHC
SDG No.: 3561

VOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The samples were analyzed within holding time constraints, and the lab blank was free of significant contamination. No TIC's were detected in sample B07KR7 and 8-ppb of acetone was the only target compound found. All surrogate recoveries were well within method specified QC limits.

The quality control results were acceptable. The LCS recoveries were excellent, as were the recoveries and RPD's for B07KR7 MS/MSD. The initial and continuing calibration data are also compliant.

John DeWald
Project Manager

enclosures

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9613428.0571

MAXWELL
S-CUBED Division

NARRATIVE

March 13, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

SEMIVOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The analyses were non-problematic and the sample was relatively clean. No target analytes were found in the sample, and it was extracted and analyzed within holding time constraints. Only a few unidentifiable TIC's were detected in the sample and lab blank was free of significant contamination.

The quality control results were acceptable. The LCS recoveries were within QC limits, as were the recoveries and RPD's for the MS/MSD set. All surrogate recoveries passed, and the initial and continuing calibration data are compliant. Please note that Di-n-octylphthalate was added to the matrix spiking solution. The results are reported on Form I, flagged with an "X", but no recovery data are included on Form III.

Loan Nguyen for,
John DeWald
Project Manager

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MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOCHLORINE PESTICIDES/PCBs

The samples were analyzed according to SW-846 Method 8080. All samples were clean. No problems were encountered with these analyses.

The quality control results were acceptable. Surrogate results were acceptable. LCS results were excellent. Matrix results were acceptable. Calibration results were acceptable.

John DeWald
Project Manager

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MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOCHLORINE HERBICIDES

The samples were analyzed according to SW-846 Method 8150. Several problems were encountered with this analysis. Initial sample preparation was carried out within holding times. Analytical results indicated that the field sample was spiked with the matrix compounds. Corrective action in the form of reextraction was carried out, three days past the holding time.

Both extraction blanks yielded false positive hits for 2,4 DB. The quantitative values obtained from the two columns differed by greater than 130 % indicating that this identification is probably incorrect. Corrective action has been initiated to determine the source of this problem.

Surrogate results were excellent. LCS results were excellent. Matrix results were fine for most of the analytes. 2,4 DB was found at a higher level in the unspiked sample than in the MS/MSD due to the above mentioned interference. Calibration results were acceptable.

The one sample analyzed yielded hits for 2,4 D and 2,4 DB which are likely false positives due to the high percent differences in the quantitative values obtained from the two columns. As stated above the 2,4 DB was detected in the blanks.

John DeWald
Project Manager

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MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOPHOSPHATE PESTICIDES

The samples were analyzed according to SW-846 Method 8140. No significant problems were encountered with these analyses. Please note that the surrogate (Ethion) and Sulprofos coelute on the quantitation column, thus second column results are presented for these compounds
The one sample analyzed was clean.

The quality control results were generally acceptable. Surrogate results were excellent. LCS results were excellent. Matrix results were fine with he exception of a poor reproducibility of Sulprofos. Calibration results were acceptable. Please note Nalad utilized a three point calibration curve due to poor response at the lower end of the calibration curve.

Loan Nguyen for
John DeWald
Project Manager

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MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

TRPH

The samples were analyzed according to EPA Method 418.1 for TRPH. There were no difficulties with the analyses. The quality control results were acceptable. MS and %RPD recoveries were within the control limits

John DeWald
Project Manager

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MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

METALS

The samples were analyzed according to the ILM.02.1 Statement of Work for the CLP list. Analytes of interest were detected in the sample. The quality control results were generally acceptable. MS recoveries were low for Sb, As, and Tl. %RPD were within the control limits. All soil LCS recoveries were within the advisory ranges.

ANIONS

The samples were analyzed according to EPA Method 300.0 for anions. For soil, 9 gm of sample was leached into 45 ml of DI Type II water prior to IC analysis. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

Cr VI

The samples were analyzed according to SW-846 Method 7196 for Cr VI. For soil, 20 gm of sample was leached into 100 ml of DI Type II water prior to analysis. The sample required a dilution factor of 100 prior to analysis due to matrix interferences. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

NO_3/NO_2

The samples were analyzed according to EPA Method 353.3 for NO_3/NO_2. The sample required a dilution factor of 2 due to high concentration level exceeds the linear range. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

Van Nguyen for

John DeWald
Project Manager

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9613428.0377

LOT #3561

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Jonathan G. Lucas

Company Contact: Frank W. Gustafson

Telephone: 509-376-1736

Project Designation/Sampling Locations: North Slope ERA-

Collection Date: 2-16-93

Ice Chest No.: H-07-H RM #22

Field Logbook No.: EFL-1031-2

Bill of Lading/Airbill No.: 2536953441

Offsite Property No.: W93-0-0285 #7

Method of Shipment: Emery

Shipped to: S-Cubed San Diego, CA

Possible Sample Hazards/Remarks: —

Sample Identification

B07KR7 — Soil Sample
1 - 120 ml g Sept
1 - 1L aG
3 - 120 ml aG

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
Jonathan G. Lucas			Amy Mecke	2/20/93	12:30PM

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/92) WEF061

SPLIT

9613428.0378

Temp 4°C LOT# 3561

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector Craig A. Rowley Date 2-18-93

Company Contact Frank W. Gustafson Telephone (509) 376-1736

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
01 B07KR7	S	2-16-93	1530-1540	1- 120 ml aG- VOA (CLP)
				1- ~~250ml~~ 1 l aG - Semi VOA (CLP), PCB/Pests
				(CLP), Phosphorus Pests (8140), Herbicides (8150)
				1- 120ml aG - AA metals (As, Pb, Se, Tl - CLP),
				Hg (CLP), ICP metals (CLP)
				1- 120ml aG - Anions (F, Cl, PO4, SO4 - EPA 300.0),
				(NO2, NO3 - EPA 353.3), Chromium VI (EPA 218.4)
				1- 120ml aG - TPH (EPA 418.1)

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information —

Special Handling and/or Storage Cool 4°C

Possible Sample Hazards —

A-6000-406 (06/91)

9613428.0379

OK 2-19-93 "~~Next Day~~ Saturday Delivery"

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Co.		W93-0-0285#7

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environ. Eng.	Site Remediation	

The following items are to be shipped from ☐ Contractor ☐ Vendor

Routing ☐ Contractor ☐ Vendor

Shipped to	Off-site Custodian
S-Cubed 3398 Carmel Mt. Rd. San Diego, CA 92121-1095	John Dewald
	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 25 lbs	Polyicechest (RM#22) containing glass sample containers of soil packed in wet ice and vermiculite. Sample # B07KR7	

☐ Classified ☑ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Program not available onsite.

Bill of Lading 2536953441

RECEIVED

FEB 19 1993

PROPERTY RECORDS

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING

RM Clearance for Public Release	RM Survey No.	Date
[illegible]	5616	2-19-93

Location of Property (Area & Bldg.)	Contact	Phone
North Slope-ERA - H-07-H	Frank W. Gustafson	376-1736

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
2-18-93	PD42A 81353	N/A

Originated By	Date	Authorized By	Date
V.G. Lucas	2-18-93	[illegible]	2/18/93

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	2/19/93

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
C.R. [illegible] (36)				
Date 2-1993				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:	
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain	Green – Property Control Custodian (Issuing Office) Pink – Originator

13

54-3000-479 (09/89)

PLEASE TYPE OR USE BALL POINT PEN. BEAR DOWN FIRMLY!
KEEP MARKS WITHIN BOXES TO ASSURE ACCURACY

FORM NO. 66001-46

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Ship ☒ Bill to Consignee ☐ Third Party Billing ☐

EMERY WORLDWIDE — A CF Company

SERVICES

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ PM ☐ Second Day ☐ Saturday Delivery ☒

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

PULL FOR SHPT. NO. TAB

Shipper's Account Number: E 850281585

Date: 02-19-93 | Origin: PSC | Shipment Number: 253695344 1

From:
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

To:
JOHN DEWALD
S-CUBED
3398 CARMEL MT. ROAD
SAN DIEGO CA 92121-1095
Hold for Pick Up ☐ Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: W81353 PD42A W93-0-028547 | 99352

Consignee's Account Number: E

Description	Pcs	L	W	H	Total Pieces	Total Weight (lbs)
1 ICE CHEST RM#22 SOIL SAMPLES	1	29	16	17	1	25

Declared Value $

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

253695344 1

Remarks: B07KR7 SATURDAY DELIVERY

Shipper's Signature X

Zip Ship ☐ — For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☐ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. Third Party Account Number: E

International Customs Value | International Insurance

Base Charge

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

SAN-5A

Terms and Conditions on back

CONSIGNEE — PACKAGE COPY — 4

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14

9613428.0381

MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

VOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The samples were analyzed within holding time constraints, and the lab blank was free of significant contamination. No TIC's were detected in sample B07KR7 and 8-ppb of acetone was the only target compound found. All surrogate recoveries were well within method specified QC limits.

The quality control results were acceptable. The LCS recoveries were excellent, as were the recoveries and RPD's for B07KR7 MS/MSD. The initial and continuing calibration data are also compliant.

John DeWald
Project Manager

enclosures

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 5.00 (g/ml)G Lab File ID: CW101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: not dec. 9.41 Date Analyzed: 02/25/93
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.00
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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	U
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	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethyl Benzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

9613428.0583

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
B07KR7

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA		
2.				
3.				
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9613428.0384

MAXWELL
S-CUBED Division

NARRATIVE

March 13, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

SEMIVOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The analyses were non-problematic and the sample was relatively clean. No target analytes were found in the sample, and it was extracted and analyzed within holding time constraints. Only a few unidentifiable TIC's were detected in the sample and lab blank was free of significant contamination.

The quality control results were acceptable. The LCS recoveries were within QC limits, as were the recoveries and RPD's for the MS/MSD set. All surrogate recoveries passed, and the initial and continuing calibration data are compliant. Please note that Di-n-octylphthalate was added to the matrix spiking solution. The results are reported on Form I, flagged with an "X", but no recovery data are included on Form III.

John DeWald
Project Manager

enclosures

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: W6101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: 9.41 decanted: (Y/N) N Date Extracted: 02/23/93
Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 03/08/93
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
108-95-2	Phenol	730	U
111-44-4	bis(2-Chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
95-48-7	2-Methylphenol	730	U
108-60-1	2,2'-oxybis(1-Chloropropane)	730	U
106-44-5	4-Methylphenol	730	U
621-64-7	N-Nitroso-di-n-propylamine	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	bis(2-Chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	730	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	730	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	730	U
208-96-8	Acenaphthylene	730	U
606-20-2	2,6-Dinitrotoluene	730	U
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	730	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: W6101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: 9.41 decanted: (Y/N) N Date Extracted: 02/23/93
Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 03/08/93
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	730	U
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
7005-72-3	4-Chlorophenyl-phenyl ether	730	U
86-73-7	Fluorene	730	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	730	U
101-55-3	4-Bromophenyl-phenylether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
91-94-1	3,3'-Dichlorobenzidine	730	U
56-55-3	Benzo(a)anthracene	730	U
218-01-9	Chrysene	730	U
117-81-7	Bis(2-Ethylhexyl)phthalate	730	U
117-84-0	Di-n-octylphthalate	730	U
205-99-2	Benzo(b)fluoranthene	730	U
207-08-9	Benzo(k)fluoranthene	730	U
50-32-8	Benzo(a)pyrene	730	U
193-39-5	Indeno(1,2,3-cd)pyrene	730	U
53-70-3	Dibenz(a,h)anthracene	730	U
191-24-2	Benzo(g,h,i)perylene	730	U

9613428.0387

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
BC7KR7

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 00123-42-2	2-PENTANONE 4-HYDROXY-4-METH	BNA	6.96	3400 JBN
2.	UNKNOWN	"	35.71	360 J
3.	"	"	36.66	330 J
4.	"	"	37.56	560 J
5.	UNKNOWN HYDROCARBON	"	39.43	340 J
6.				
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MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOCHLORINE PESTICIDES/PCBs

The samples were analyzed according to SW-846 Method 8080. All samples were clean. No problems were encountered with these analyses.

The quality control results were acceptable. Surrogate results were acceptable. LCS results were excellent. Matrix results were acceptable. Calibration results were acceptable.

John DeWald
Project Manager

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PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: R0224-9DB608075
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/23/93
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/05/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	1.88	U
319-85-7	beta-BHC	1.88	U
319-86-8	delta-BHC	1.88	U
58-89-9	gamma-BHC (Lindane)	1.88	U
76-44-8	Heptachlor	1.88	U
309-00-2	Aldrin	1.88	U
1024-57-3	Heptachlor epoxide	1.88	U
959-98-8	Endosulfan I	1.88	U
60-57-1	Dieldrin	3.64	U
72-55-9	4,4'-DDE	3.64	U
72-20-8	Endrin	3.64	U
33213-65-9	Endosulfan II	3.64	U
72-54-8	4,4'-DDD	3.64	U
1031-07-8	Endosulfan sulfate	3.64	U
50-29-3	4,4'-DDT	3.64	U
72-43-5	Methoxychlor	18.8	U
53494-70-5	Endrin ketone	3.64	U
7421-36-3	Endrin Aldehyde	3.64	U
5103-71-9	alpha-Chlordane	1.88	U
5103-74-2	gamma-Chlordane	1.88	U
8001-35-2	Toxaphene	188	U
12674-11-2	Aroclor-1016	36.4	U
11104-28-2	Aroclor-1221	73.9	U
11141-16-5	Aroclor-1232	36.4	U
53469-21-9	Aroclor-1242	36.4	U
12672-29-6	Aroclor-1248	36.4	U
11097-69-1	Aroclor-1254	36.4	U
11096-82-5	Aroclor-1260	36.4	U

9613428.0390

MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOCHLORINE HERBICIDES

The samples were analyzed according to SW-846 Method 8150. Several problems were encountered with this analysis. Initial sample preparation was carried out within holding times. Analytical results indicated that the field sample was spiked with the matrix compounds. Corrective action in the form of reextraction was carried out, three days past the holding time.

Both extraction blanks yielded false positive hits for 2,4 DB. The quantitative values obtained from the two columns differed by greater than 130 % indicating that this identification is probably incorrect. Corrective action has been initiated to determine the source of this problem.

Surrogate results were excellent. LCS results were excellent. Matrix results were fine for most of the analytes. 2,4 DB was found at a higher level in the unspiked sample than in the MS/MSD due to the above mentioned interference. Calibration results were acceptable.

The one sample analyzed yielded hits for 2,4 D and 2,4 DB which are likely false positives due to the high percent differences in the quantitative values obtained from the two columns. As stated above the 2,4 DB was detected in the blanks.

John DeWald
Project Manager

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HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7~~RX~~ N

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01~~RX~~ N
Sample wt/vol: 5 (g/ml) G Lab File ID: H0310-4DB608024
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/05/93
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/11/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
94-75-7	2,4-D	245	
94-82-6	2,4-DB	1210	B
93-76-5	2,4,5-T	27.5	U
93-72-1	2,4,5-TP	27.5	U
88-85-7	Dinoseb	27.5	U
120-36-5	Dichlorprop	55.1	U
1918-00-9	Dicamba	55.1	U

9613428.0392

MAXWELL
S-CUBED Division

NARRATIVE

March 19, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

ORGANOPHOSPHATE PESTICIDES

The samples were analyzed according to SW-846 Method 8140. No significant problems were encountered with these analyses. Please note that the surrogate (Ethion) and Sulprofos coelute on the quantitation column, thus second column results are presented for these compounds
The one sample analyzed was clean.

The quality control results were generally acceptable. Surrogate results were excellent. LCS results were excellent. Matrix results were fine with he exception of a poor reproducibility of Sulprofos. Calibration results were acceptable. Please note Nalad utilized a three point calibration curve due to poor response at the lower end of the calibration curve.

John DeWald
Project Manager

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PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: B0309-6DB1701018
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/23/93
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/10/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
115-90-2	Fensulfothion	91.7	U
13194-48-4	Ethoprop	18.4	U
150-50-5	Merphos	45.9	U
2921-88-2	Chlorpyrifos	18.4	U
298-00-0	Parathion-methyl	45.9	U
298-02-2	Phorate	18.4	U
298-04-4	Disulfoton	18.4	U
299-84-3	Ronnel	18.4	U
300-76-5	Naled	91.7	U
327-98-0	Trichloronate	36.7	U
333-41-5	Diazinon	18.4	U
34843-46-4	Tokuthion(Prothiofos)	18.4	U
35400-43-2	Bolstar(Sulprophos)	45.9	U
55-38-9	Fenthion	18.4	U
56-72-4	Coumaphos	45.9	U
62-73-7	Dichlorvos	18.4	U
7786-34-7	Mevinphos	36.7	U
8065-48-3	Dematon-O	68.8	U
8065-48-3A	Dematon-P	68.8	U
86-50-0	Azinphos methyl	114	U
961-11-5	Stirophos(Tetrachlorvinphos)	36.7	U

9613428.0394

MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

TRPH

The samples were analyzed according to EPA Method 418.1 for TRPH. There were no difficulties with the analyses. The quality control results were acceptable. MS and %RPD recoveries were within the control limits

John DeWald
Project Manager

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9613428.0395

Analyte:	TRPH	Smpl Aliquot:	0.020 Kg or L
Method:	418.1	Final Volume:	0.1 L
Technique:	IR Spec.		
DATE:	2/24/93	Concs:	p.p.m.
Analyst:	LC/EE	Reagent #1	20
Instr:	P&E IR Spec.	#2	40
Case:	92-451	#3	80
Lot(s):	3561	#4	160
		#5	300
Standards		#6	
Source:	S-CUBED/EL4250		
Corr. Coef.	0.99993		
		Detection Limit	20mg/kg

Std.	Abs	Conc
Blank	0	0
#1	0.037	20
#2	0.069	40
#3	0.135	80
#4	0.271	160
#5	0.51	300
#6		

S-Cubed Sample ID	Client Sample ID	Abs.	Conc. (ug/ml)	Dil. Factor	SAMPLE Conc.	Detection Limit	% Mois.	(mg/kg) Final CONC.
EBS0223	EBS0223	0	0.0000	1	0.0000	20	0	0
LCSS0223	LCSS0223	0.269	159.2353	1	796.1763	20	0	796
3561-01	B07KR7	0.022	13.0230	1	65.1148	20	9.41	72
3561-01REP	B07KR7REP	0.021	12.4310	1	62.1550	20	9.41	69
3561-01MS	B07KR7MS	0.304	179.9536	1	899.7680	20	9.41	993

3561 STRP.WQ1

9613428.0396

MAXWELL
S-CUBED Division

NARRATIVE

March 16, 1993

Narrative Project:	92-451
Reference No.:	32359-79
Client:	WHC
SDG No.:	3561

METALS

The samples were analyzed according to the ILM.02.1 Statement of Work for the CLP list. Analytes of interest were detected in the sample. The quality control results were generally acceptable. MS recoveries were low for Sb, As, and Tl. %RPD were within the control limits. All soil LCS recoveries were within the advisory ranges.

ANIONS

The samples were analyzed according to EPA Method 300.0 for anions. For soil, 9 gm of sample was leached into 45 ml of DI Type II water prior to IC analysis. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

Cr VI

The samples were analyzed according to SW-846 Method 7196 for Cr VI. For soil, 20 gm of sample was leached into 100 ml of DI Type II water prior to analysis. The sample required a dilution factor of 100 prior to analysis due to matrix interferences. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

NO_3/NO_2

The samples were analyzed according to EPA Method 353.3 for NO_3/NO_2. The sample required a dilution factor of 2 due to high concentration level exceeds the linear range. The quality control results were acceptable. MS and %RPD recoveries were within the control limits.

John DeWald
Project Manager

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3561-01

Lab Name: S_CUBED Contract: 32359-79

Lab Code: S3 Case No.: 92451 SAS No.: SDG No.: 3561

Matrix (soil/water): SOIL Lab Sample ID: 3561-01

Level (low/med): LOW Date Received: 02/20/93

% Solids: 90.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600			P
7440-36-0	Antimony	5.4	B	N	P
7440-38-2	Arsenic	6.1		N	F
7440-39-3	Barium	96.1			P
7440-41-7	Beryllium	0.69	B		P
7440-43-9	Cadmium	1.8			P
7440-70-2	Calcium	12200			P
7440-47-3	Chromium	17.1			P
7440-48-4	Cobalt	11.6			P
7440-50-8	Copper	28.8			P
7439-89-6	Iron	22900			P
7439-92-1	Lead	21.3			F
7439-95-4	Magnesium	6970			P
7439-96-5	Manganese	369			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	16.9			P
7440-09-7	Potassium	2160			P
7782-49-2	Selenium	0.52	B		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	181	B		P
7440-28-0	Thallium	0.66	U	N	F
7440-62-2	Vanadium	46.4			P
7440-66-6	Zinc	103			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B07KR7

FORM I - IN

7/88

LABORATORY: S-CUBED
CLIENT: WHC
PROJECT: 92-451
LOT #: 3561
FILE #: ANI3561
DISK #: ANI1123
METHOD NO.: 300.0
UNIT: MG/KG

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DATA REVIEWER: aw 3/11/93
PROJECT REVIEWER:
CHARGE #: 32359-79
DATE SAMPLED: 02/16/93
DATE RECEIVED: 02/23/93
PREP DATE: 03/08/93
DATE ANALYZED: 03/09/93
SAMPLE TYPE: SOIL

LAB ID	F	Cl	NO2	Br	NO3	PO4	SO4		
3561-01	1.42	6.35	<0.2	<0.6	63.2	4.58	23.7		

All QC data were acceptable. The sample of 9 gm was leached into 45 mL DI-type II water prior to IC analysis. RPD and MS recovery were within the control limits.

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-451
Sampling Date: 02/16/93

Analyst: GA
Review : WN 3/11/93
Receipt. Date: 02/24/93

Analyte: CR VI

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3561-01	S	A	B07KR7	< MDL	2.74

Method Detection Limit: 5.000 ug/L
Preparation Method: 3-17 LN ~~HACH~~ 7196
Analytical Method: 3-17 LN ~~HACH~~ SW-846 Method 7196
Preparation Date: 02/24/93
Analysis Date: 02/25/93

217

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC data were acceptable. 20 gm of soil was leached into 100 mL DI Type II water prior to analysis. The sample was required 100 x dilution due to matrix interferences. RPD and MS recovery were within the criteria

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-451
Sampling Date: 02-16-93

Analyst: CLN
Review : 03/02/93
Receipt. Date: 02-20-93

Analyte: NO3/NO2

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3561-01	S	A	B07KR7	27.9	1.10

Method Detection Limit: 0.100 mg/L
Preparation Method: 353.3
Analytical Method: 353.3
Preparation Date: 02-24-93
Analysis Date: 02-24-93

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC data were acceptable. RPD and MS were within the control limit. The sample was diluted 2 X due to high concentration level exceeds the linear range.

9613428.0401

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: General Chemistry Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for anions, hexavalent chromium, and nitrate+nitrite as N. The sample was analyzed by the S-Cubed laboratory using routine laboratory protocols. The sample identification number, collection date, and sample media is described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of nine (9) determinations reported. Out of the nine (9) determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified during validation.

MINOR DEFICIENCIES

The holding time of 2 days was exceeded for ortho-phosphate; therefore, the sample result was qualified as estimated (J).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0403

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: General Chemistry Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for anions, hexavalent chromium, and Nitrate + Nitrite as N analyses. The sample was analyzed by the S-Cubed laboratory using routine laboratory protocols. The sample identification number, collection date, and sample media is described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of nine (9) determinations reported. Out of the nine (9) determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified during validation.

MINOR DEFICIENCIES

The holding time of 2 days was exceeded for ortho-phosphate; therefore, the sample result was qualified as estimated (J).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0405

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

BJ - Indicates the analyte was analyzed for and detected at a concentration greater than the IDL but less than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected at a concentration greater than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

9613428.0407

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561-SCU-111	REVIEWER: TMS	DATE: 5/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
PO_4	J	B07KR7	Holding time exceeded.

9613428.0409

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613428.0410

LABORATORY: S-CUBED
CLIENT: WHC
PROJECT: 92-451
LOT #: 3561
FILE #: ANI3561
DISK #: ANI1123
METHOD NO.: 300.0
UNIT: MG/KG

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DATA REVIEWER: aw 3/11/93
PROJECT REVIEWER:
CHARGE #: 32359-79
DATE SAMPLED: 02/16/93
DATE RECEIVED: 02/23/93
PREP DATE: 03/08/93
DATE ANALYZED: 03/09/93
SAMPLE TYPE: SOIL

LAB ID	F	Cl	NO2	Br	NO3	PO4	SO4		
3561-01	1.42	6.35	<0.2	<0.6	63.2	4.58	23.7		
			U	U		J			

All QC data were acceptable. The sample of 9 gm was leached into 45 mL DI-type II water prior to IC analysis. RPD and MS recovery were within the control limits.

5/21/93

9613428.0411

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-451
Sampling Date: 02/16/93

Analyst: GA
Review : WN 3/11/93
Receipt. Date: 02/24/93

Analyte: CR VI

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3561-01	S	A	B07KR7	< MDL	2.74

Method Detection Limit: 5.000 ug/L
Preparation Method: 3060 ~~HACH~~ 7196
Analytical Method: 7196 ~~HACH~~ SW-846 Method 7196
Preparation Date: 02/24/93
Analysis Date: 02/25/93

5/21/93

217

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC data were acceptable. 20 gm of soil was leached into 100 mL DI Type II water prior to analysis. The sample was required 100x dilution due to matrix interferences. RPD and MS recovery were within the criteria

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-451
Sampling Date: 02-16-93

Analyst: LIN
Review : 03/02/93
Receipt. Date: 02-20-93

Analyte: NO3/NO2

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3561-01	S	A	B07KR7	27.9	1.10

Method Detection Limit: 0.100 mg/L
Preparation Method: 353.3
Analytical Method: 353.3
Preparation Date: 02-24-93
Analysis Date: 02-24-93

RB 5/21/93

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC data were acceptable. RPD and MS were within the control limit. The sample was diluted 2X due to high concentration level exceeds the linear range.

9613428.0413

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: North Slope	REVIEWER: TMS	DATE: 5/21/93
LABORATORY: S-Cubed	CASE:	SDG: 3561-SCU-111
SAMPLES/MATRIX: B07KR7 / Soil		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative			
Cover Page			
Traffic Reports/Chain-of-Custody			
Sample Analysis Data Report Forms			
Standards Data			
QC Summary			
Blanks Summary Report Forms			
Spike Sample Recovery Report Forms			
Duplicate Sample Analysis Report Forms			
Laboratory Control Sample Report Forms			
Raw Data			
Ion Chromatograph Chromatograms			
TOC and TOX Instrument Printouts			
Laboratory Bench Sheets			
Additional Data			
Laboratory Sample Preparation Logs			
Instrument Run Logs			
Internal Laboratory Chain-of-Custory			
Percent Solids Analysis Records			
Reduction Formulae			
Chemist Notebook Pages			

Not required
RS 5/21/93

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes **(No)** N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995? * See page A7-5.	Yes	No*	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	~~No~~	N/A

5/21

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? * See page A7-5. (Yes) No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are instrument detection limits below the CRDL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Correlation coefficient for Chloride is 0.9939 by linear regression. No qualifier will be applied.

Replicate results only are available for anions + NO_2/NO_3 and RPD values are within control limits. No qualifier will be applied.

Cr VI replicate results are both below the IDL and no precision qualifier will be applied.

5/21/93

HOLDING TIME SUMMARY - FORM B-1

3561-SCU-111

SDG:	REVIEWER: T. Stapp	DATE: 5/21/93	PAGE 1 OF 1

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	Fl^-	2-16-93	3-8-93	3-9-93	20	21	None
	Cl^-						
	NO_2						
	NO_3						
	Br						
	PO_4						J
	SO_4						None
	Cr VI		2-24-93	2-25-93	7	8	None
B07KR7	NO_2/NO_3	2-16-93	2-24-93	2-24-93	7	7	None

9613428.0420

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Inorganics Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for inorganics analysis (ICP metals, AA metals and mercury). The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of antimony, arsenic, and thallium spike recoveries as summarized in the major and minor deficiency sections.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of 23 determinations reported. Out of the 23 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The spike recovery for antimony was <30%. Therefore, the result for antimony in sample B07KR7 was qualified as unusable (R for the detected result).

MINOR DEFICIENCIES

Blanks

Selenium and antimony were detected in the laboratory blank. Therefore, the associated sample results that are less than five times the respective blank concentration have been qualified as undetected (U).

Matrix Spike

The matrix spike recovery for arsenic and thallium were below the 75% control limit, but greater than 30%. Therefore the sample result was qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0422

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

BJ - Indicates the analyte was analyzed for and detected at a concentration greater than the IDL but less than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected at a concentration greater than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

9613428.0424

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561-SCU-111	REVIEWER: TMS	DATE: 5/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Selenium	U	B07KR7	Contaminant found in Blank
Antimony	U	B07KR7	↓
Antimony	R	B07KR7	MS recovery <30%
Arsenic	J	↓	MS recovery < 75%
Thallium	UJ	↓	" " "

9613428.0426

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613428.0427

B07KR7

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3561-01

Lab Name: S_CUBED Contract: 32359-79

Lab Code: S3 Case No.: 92451 SAS No.: SDG No.: 3561

Matrix (soil/water): SOIL Lab Sample ID: 3561-01

Level (low/med): LOW Date Received: 02/20/93

% Solids: 90.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11600			P	
7440-36-0	Antimony	5.4	~~B~~	N	P	~~R~~ UR
7440-38-2	Arsenic	6.1		N	F	J
7440-39-3	Barium	96.1			P	
7440-41-7	Beryllium	0.69	B		P	
7440-43-9	Cadmium	1.8			P	
7440-70-2	Calcium	12200			P	
7440-47-3	Chromium	17.1			P	
7440-48-4	Cobalt	11.6			P	
7440-50-8	Copper	28.8			P	
7439-89-6	Iron	22900			P	
7439-92-1	Lead	21.3			F	
7439-95-4	Magnesium	6970			P	
7439-96-5	Manganese	369			P	
7439-97-6	Mercury	0.11	U		CV	
7440-02-0	Nickel	16.9			P	
7440-09-7	Potassium	2160			P	
7782-49-2	Selenium	0.52	~~B~~		F	U
7440-22-4	Silver	2.0	U		P	
7440-23-5	Sodium	181	B		P	
7440-28-0	Thallium	0.66	~~U~~	N	F	UJ
7440-62-2	Vanadium	46.4			P	
7440-66-6	Zinc	103			P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:
B07KR7 Cyanide was not analyzed. 5/21/93

FORM I - IN

7/88

9613428.0428

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: ~~200-BP~~ North Slope ~~TS~~ 5/21	REVIEWER: TMS	DATE: 5/21/93
LABORATORY: S-Cubed	CASE:	SDG: 3561-SCU-111
SAMPLES/MATRIX: B07KR7 / Soil		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Cover Page	—	—	—
Traffic Reports	—	—	—
Sample Data			
Inorganic Analysis Data Sheets	—	—	—
Standards Data			
Initial and Continuing Calibration Verification	—	—	—
CRDL Standard for AA and ICP	—	—	—
QC Summary			
Blanks	—	—	—
ICP Interference Check Summary	—	—	—
Spike Sample Recovery	—	—	—
Post-Digestion Spike Sample Recovery	—	—	—
Duplicate	—	—	—
Laboratory Control Sample	—	—	—
Standard Addition Results	—	—	—
ICP Serial Dilutions	—	—	—
Instrument Detection Limits	—	—	—
ICP Interelement Correction Factors	—	—	—
ICP Linear Ranges	—	—	—
Preparation Log	—	—	—
Analysis Run Log	—	—	—
Raw Data			
ICP Raw Data	—	—	—
Furnace AA Raw Data	—	—	—
Mercury Raw Data	—	—	—
Cyanide Raw Data	—	—	—
Additional Data			
Internal laboratory chain-of-custody	—	—	—
Laboratory Sample Preparation Records	—	—	—

Not Required
TS 5/21/93

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	—	—	—
Reduction Formulae	—	—	—
Instrument Run Logs	—	—	—
Chemist Notebook Pages	—	—	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? (Yes) No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

* See note, page A6-6.

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? (Yes) No N/A

Are the correlation coefficients ≥0.995? (Yes) No N/A

Was a midrange cyanide standard distilled? Yes No (N/A)

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results >IDL as estimated (J) and results <IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? (Yes) No N/A

Are the AB solution %R values within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Mercury standard set did not have a CRDL standard run @ 0.2 per requirements of the validation procedures.

5/21/93

HOLDING TIME SUMMARY - FORM B-1

3561-SCU-111

SDG:	REVIEWER: T. Stapp	DATE: 5/21/93	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	ICP	2-16-93	2-24-93	3-5-93	8	17	None
	As			2-25-93	8	9	
	Pb			3-08-93	8	20	
	Se			2-25-93	8	9	
	Tl			2-25-93	8	9	
	Hg		2-24-93	2-24-93	8	8	

5/21

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

3561-SCU-111

SDG:	REVIEWER: T. Stapp	DATE: 5-21-93	PAGE 1 OF 1

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB1	Aluminum	42.2			µg/L	211		None	—
ICB	Selenium	3.0				15		B07KR7	U
P.B.	Antimony	18.5				92.5		B07KR7	U
P.B.	Iron	24.9				125		None	—

TS 5/21/93

9513428.0936

ACCURACY DATA SUMMARY - FORM B-4

SDG: 3561-SCU-111	REVIEWER: T. Stapp	DATE: 5/21/93	PAGE 1 OF 1	
COMMENTS: Matrix Spike recovery data. All analytical spikes are OK.				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07KR7 MS	Antimony	26.7	B07KR7	R
	Arsenic	74.1		J
	Thallium	30.1		UJ

5/21/93

9613428.0438

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organophosphorus Pesticide Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for orthophosphate pesticides analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 8140. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of 21 determinations reported. Out of the 21 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The were no major deficiencies identified during validation.

MINOR DEFICIENCIES

Calibrations

The initial calibration relative standard deviation (%RSD) of 20% was exceeded for m-azinphos and coumaphos. Therefore, results for these compounds in sample B07KR7 were qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0440

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613428.0441

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0442

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561	REVIEWER: CJ	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Organophosphate pesticides			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
m-Azinphos	J or UJ	B07KR7	calib. %D RSD >25%
Coumaphos	J or UJ	B07KR7	calib. %D RSD >25%

9613428.0444

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1D

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: B0309-6DB1701018
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/23/93
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/10/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q	Q
115-90-2	Fensulfothion	91.7	U	
13194-48-4	Ethoprop	18.4	U	
150-50-5	Merphos	45.9	U	
2921-88-2	Chlorpyrifos	18.4	U	
298-00-0	Parathion-methyl	45.9	U	
298-02-2	Phorate	18.4	U	
298-04-4	Disulfoton	18.4	U	
299-84-3	Ronnel	18.4	U	
300-76-5	Naled	91.7	U	
327-98-0	Trichloronate	36.7	U	
333-41-5	Diazinon	18.4	U	
34843-46-4	Tokuthion(Prothiofos)	18.4	U	
35400-43-2	Bolstar(Sulprophos)	45.9	U	
55-38-9	Fenthion	18.4	U	
56-72-4	Coumaphos	45.9	~~U~~	UJ
62-73-7	Dichlorvos	18.4	U	
7786-34-7	Mevinphos	36.7	U	
8065-48-3	Dematon-O	68.8	U	
8065-48-3A	Dematon-P	68.8	U	
86-50-0	Azinphos methyl	114	~~U~~	UJ
961-11-5	Stirophos(Tetrachlorvinphos)	36.7	U	

FORM I PEST

6/3/93

3/90

9613428.0446

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

organophosphate pesticides
6/3/93 ~~HERBICIDE~~ DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Shore ERA	REVIEWER: GJ	DATE: 6/3/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: soil B07KR7		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

not necessary
GJ 6/3/93

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Data Summary	—	—	—
Chain of Custody Forms	—	—	—
Sample Analysis Request	—	—	—
QC Summary			
Surrogate Recovery	—	—	—
MS/MSD Recovery	—	—	—
Method Blank Summary	—	—	—
Sample Data			
Sample Results	—	—	—
Chromatograms for all samples/extracts	—	—	—
Quantitation sheets for all samples/extracts	—	—	—
Extraction data sheets for all samples/extracts	—	—	—
Instrument time/run logs for all samples/extracts	—	—	—
Standards Data			
Initial Calibration standard concentrations	—	—	—
Initial Calibration summary of RRF/RSD data	—	—	—
Chromatograms for all initial cal. standards	—	—	—
Quantitation sheets for all initial cal. standards	—	—	—
Instrument time/run logs for all samples/extracts	—	—	—
Calibration standard traceability data	—	—	—
Raw QC Data			
Blanks			
Laboratory Blank results	—	—	—
Chromatograms for all laboratory blanks	—	—	—
Quantitation reports for all laboratory blanks	—	—	—
Matrix Spike/Matrix Spike Duplicates			
MS/MSD Results	—	—	—
Chromatograms	—	—	—
Quantitation reports	—	—	—

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% Solids data sheets		—	—	—
Calculation formulae		—	—	—
Instrument Run/Time Logs		—	—	—
Chemist notebook pages		—	—	—
Sample preparation sheets		—	—	—

not necessary
gj 6/3/93

2. HOLDING TIMES

Were all samples extracted within holding times? Yes No N/A

Were all samples analyzed within holding times? Yes No N/A

ACTION: If the extraction or analytical holding times were exceeded, but not by a factor of two, qualify all affected results as estimated (J for detects and UJ for nondetects). Otherwise, reject all nondetects (R) and qualify all detects as estimated (J).

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration conducted prior to sample analysis? Yes No N/A

See Comment 1

Are all RSD values <20%? Yes No N/A

ACTION: If the RSD criteria were not met, qualify all results as estimated (J for detects and UJ for nondetects).

3.2 CONTINUING CALIBRATION

Have continuing calibrations been conducted at the proper frequency? Yes No N/A

Are the ~~RRFs~~ %Ds within ±15% of the initial calibration average RF? Yes No N/A

Are the RT values for the calibration compounds within the retention time windows? Yes No N/A

ACTION: If the percent difference criteria or retention time windows are not met, qualify all associated data as estimated (J for detects, UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed at least one method blank per matrix in the sample batch? Yes No N/A

Are target compounds present in the laboratory blanks? Yes (No) N/A

ACTION: Qualify all detected results in the samples that are <5 times the amount in any laboratory blank as nondetects (U).

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected results in the samples that are <5 times the amount in any valid field blank as nondetects (U).

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes (No) ~~N/A~~ 10/3/93

Are any surrogates nondetected? Yes (No) N/A

ACTION: Surrogate recoveries out of specification will require qualification of all associated data as estimated (J for detects and UJ for nondetects). Surrogate recoveries that are 0% will require qualification of all detects as estimated (J) and the rejection of all nondetects (R).

5.2 MATRIX SPIKE RECOVERY

Has the laboratory conducted a MS/MSD analysis per matrix for the sample group? (Yes) No N/A

Are there calculation or transcription errors? Yes (No) N/A

Are MS recoveries within specification? (Yes) No N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are there any calculation or transcription errors? Yes No N/A

See comment 2

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATES

Are the field duplicate RPDs acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are the field split RPDs acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

no hits detected

Are positive results within the retention time windows? Yes No N/A

Are positive results unaffected by interfering peaks? Yes No N/A

ACTION: If positive results are not within the retention time windows qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no potential interferences are present, report the CRQL and if the misidentified peak interferes with the potential detection of a target peak then the reported value is the quantitation limit and the result is qualified as estimated (UJ).

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory reported sample quantitation limits within 5xCRQL levels?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and discuss in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The %RSD for the initial calibration for m-azinphos and coumaphos were 36.76 and 32.72% respectively. Compounds flagged as estimated for sample B07KR7.

2. The %RPD for Bolstar was 79%. Data was not qualified because of this.

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

HOLDING TIME SUMMARY - FORM B-1

SDG: 35121	REVIEWER: C Jensen	DATE: 4/3/93	PAGE 1 OF 1
COMMENTS: organophosphate pesticides			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
	OPP	2-10-93	2/23/93	3/10/93	7	15	none

9613428.0459

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: S-CUBED Contract: 32359-79

Lab Code: S3 Case No.: 92-451 SAS No.: N/A SDG No.: 3561

Instrument ID: GC6 HP5890 Level (x low): 1X 2X 4X 8X 16X

Column ID: DB1 ID: 0.53(mm) Date(s) Analyzed: 03/09/93 - 03/10/93

COMPOUND	IND1X	IND2X	IND4X	IND8X	IND16X	MEAN	%RSD
DICHLORVOS	4.201E+03	4.531E+03	5.100E+03	5.430E+03	6.358E+03	5.124E+03	16.39
ETHOPROP	3.268E+03	3.731E+03	4.404E+03	4.942E+03	(1)	4.086E+03	18.03
PHORATE	3.196E+03	3.418E+03	3.870E+03	4.572E+03	4.884E+03	3.988E+03	18.21
DIAZINON	4.245E+03	4.901E+03	5.283E+03	5.706E+03	6.090E+03	5.245E+03	13.64
M-PARATH	1.889E+03	1.989E+03	2.629E+03	(1)	(1)	2.167E+03	18.51
RONNEL	3.234E+03	3.270E+03	3.794E+03	3.813E+03	4.342E+03	3.691E+03	12.38
MERPHOS	(1)	(1)	2.320E+03	2.701E+03	3.105E+03	2.709E+03	14.49
FENSULFOTHION			1.713E+03	1.643E+03	2.303E+03	1.886E+03	19.22
SULPROFOS		2.942E+03	4.682E+03	4.237E+03	4.640E+03	4.125E+03	19.23
M-AZINPHOS		(1)	7.951E+02	1.542E+03	1.745E+03	1.367E+03	36.26
COUMAPHOS			1.501E+03	1.931E+03	2.841E+03	2.097E+03	32.72
MEVINPHOS			2.393E+03	3.091E+03	3.383E+03	2.756E+03	17.21
DEMETON-O	1.439E+03	1.654E+03	1.839E+03	1.942E+03	2.098E+03	1.794E+03	14.26
NALED	2.632E+03	2.903E+03	3.233E+03	3.371E+03	(1)	3.035E+03	10.96
DEMETON-S	(1)	(1)	1.246E+03	1.492E+03	1.759E+03	1.499E+03	17.12
DISULFOTON	3.904E+03	4.118E+03	4.670E+03	5.142E+03	5.371E+03	4.641E+03	13.63
FENTHION	1.796E+03	2.203E+03	2.703E+03	2.875E+03	2.992E+03	2.514E+03	19.96
CHLORPYRIFOS	3.991E+03	4.052E+03	5.017E+03	4.930E+03	5.222E+03	4.642E+03	12.43
TRICHLORONATE	1.524E+03	1.488E+03	1.696E+03	1.942E+03	1.992E+03	1.728E+03	13.44
TETRACHLORVINP	1.879E+03	1.853E+03	2.219E+03	2.661E+03	2.470E+03	2.216E+03	16.08
TOKUTHION	4.439E+03	4.638E+03	4.849E+03	4.665E+03	4.799E+03	4.678E+03	3.43
ETHION	5.350E+03	5.224E+03	6.268E+03	6.593E+03	7.176E+03	6.122E+03	13.56

CJ 6/3/93

FORM VI PEST-2

(1) POINTS NOT USED BECAUSE OF PROBLEMS WITH LINEARITY

96134284.0953

9613428.0456

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Herbicide Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for organochlorine herbicide analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 8150. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 10 determinations reported. Out of the 7 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

Blanks

2,4-DB was identified in the blank at 490 ug/kg. Therefore, the 2,4-DB result in sample B07KR7, at a concentration of 1210 ug/kg, has been qualified as undetected (U).

Holding Times

The extraction holding time was exceeded for sample B07KR7, therefore all sample results were qualified as estimated (J for detects, UJ for non-detects).

Compound Identification

The percent difference (%D) between the quantitation and confirmation columns exceeded the limit of 25% for compounds 2,4-D and 2,4-DB. Therefore, sample results were qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0458

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613428.0459

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0460

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561	REVIEWER: cj	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: organochlorine herbicides			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J or UJ	B07KR7	holding time exceeded
2,4-DB	U	B07KR7	Blank contam.
2,4-D	J or UJ	B07KR7	%D > 25%
2,4-DB	J or UJ	B07KR7	%D > 25%

9613428.0462

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613428.0463

1D

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7~~RX~~ N

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01~~RX~~ N
Sample wt/vol: 5 (g/ml) G Lab File ID: H0310-4DB608024
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/05/93
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/11/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q	Q
94-75-7	2,4-D	245	—	J
94-82-6	2,4-DB	1210	~~B~~	~~BJ~~ UJ
93-76-5	2,4,5-T	27.5	~~U~~	UJ
93-72-1	2,4,5-TP	27.5	~~U~~	UJ
88-85-7	Dinoseb	27.5	~~U~~	UJ
120-36-5	Dichlorprop	55.1	~~U~~	UJ
1918-00-9	Dicamba	55.1	~~U~~	UJ

FORM I HERB 3/90

9 6/3/93

9613428.0464

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

HERBICIDE DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/3/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: soil B07KR7		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

not necessary
cj 6/3/93

Data Package Item	Present?: Yes	No	N/A
Case Narrative			
Data Summary			
Chain of Custody Forms			
Sample Analysis Request			
QC Summary			
Surrogate Recovery			
MS/MSD Recovery			
Method Blank Summary			
Sample Data			
Sample Results			
Chromatograms for all samples/extracts			
Quantitation sheets for all samples/extracts			
Extraction data sheets for all samples/extracts			
Instrument time/run logs for all samples/extracts			
Standards Data			
Initial Calibration standard concentrations			
Initial Calibration summary of RRF/RSD data			
Chromatograms for all initial cal. standards			
Quantitation sheets for all initial cal. standards			
Instrument time/run logs for all samples/extracts			
Calibration standard traceability data			
Raw QC Data			
Blanks			
Laboratory Blank results			
Chromatograms for all laboratory blanks			
Quantitation reports for all laboratory blanks			
Matrix Spike/Matrix Spike Duplicates			
MS/MSD Results			
Chromatograms			
Quantitation reports			

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% Solids data sheets	not necessary 9/6/93	—	—	—
Calculation formulae		—	—	—
Instrument Run/Time Logs		—	—	—
Chemist notebook pages		—	—	—
Sample preparation sheets		—	—	—

2. HOLDING TIMES

See comment 2

	Yes	No	N/A
Were all samples extracted within holding times?	Yes	(No)	N/A
Were all samples analyzed within holding times?	(Yes)	No	N/A

ACTION: If the extraction or analytical holding times were exceeded, but not by a factor of two, qualify all affected results as estimated (J for detects and UJ for nondetects). Otherwise, reject all nondetects (R) and qualify all detects as estimated (J).

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

	Yes	No	N/A
Was an initial calibration conducted prior to sample analysis?	(Yes)	No	N/A
Are all RSD values <20%?	(Yes)	No	N/A

ACTION: If the RSD criteria were not met, qualify all results as estimated (J for detects and UJ for nondetects).

3.2 CONTINUING CALIBRATION

	Yes	No	N/A
Have continuing calibrations been conducted at the proper frequency?	(Yes)	No	N/A
Are the RRFs within ±15% of the initial calibration average RF?	Yes	No	(N/A)
Are the RT values for the calibration compounds within the retention time windows?	(Yes)	No	N/A

ACTION: If the percent difference criteria or retention time windows are not met, qualify all associated data as estimated (J for detects, UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

	Yes	No	N/A
Has the laboratory analyzed at least one method blank per matrix in the sample batch?	(Yes)	No	N/A

Are target compounds present in the laboratory blanks? Yes No N/A

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any laboratory blank as nondetects (U).

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any valid field blank as nondetects (U).

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? 6/13/93 Yes No N/A

Are any surrogates nondetected? Yes No N/A

ACTION: Surrogate recoveries out of specification will require qualification of all associated data as estimated (J for detects and UJ for nondetects). Surrogate recoveries that are 0% will require qualification of all detects as estimated (J) and the rejection of all nondetects (R).

5.2 MATRIX SPIKE RECOVERY

Has the laboratory conducted a MS/MSD analysis per matrix for the sample group? Yes No N/A

Are there calculation or transcription errors? Yes No N/A

Are MS recoveries within specification? Yes No N/A See comment 1

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are there any calculation or transcription errors? Yes No N/A

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATES

Are the field duplicate RPDs acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are the field split RPDs acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

See Comment 3

Are positive results within the retention time windows? Yes No N/A

Are positive results unaffected by interfering peaks? Yes No N/A

ACTION: If positive results are not within the retention time windows qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no potential interferences are present, report the CRQL and if the misidentified peak interferes with the potential detection of a target peak then the reported value is the quantitation limit and the result is qualified as estimated (UJ).

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory reported sample quantitation limits within 5xCRQL levels?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and discuss in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. Recoveries for 2,4DB were 0 for the spike + spike duplicate.

2. First extraction sheet in which there were problems was submitted (2/23/93). The re-extraction sheet was not provided (03/05/93)

3. The percent Difference between columns is >25% for both 2,4-D and 2,4-DB for sample B07KR7. The results for will be qualified as J or UJ.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3561	REVIEWER: C Jensen	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Organochlorine herbicides			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	Herbs.	02/16/93	03/05/93 ~~2/23/93~~ 6/3/93	3/11/93	17	6	J or UJ

9413428.0471

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 3561	REVIEWER: C Jensen	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: organochlorine pesticides			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
EB50305	2,4-DB	574			ug/kg	2870		B07KR7	U

9413128.0072

9613428.0473

10A

HERBICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

B07KR7RX

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Lab Sample ID: 3561-01RX Date(s) Analyzed: 03/11/93 03/11/93
Instrument ID (1): 4 Instrument ID (2): 4
GC Column(1): DB608 ID: 0.53 (mm) GC Column(2): DB1701 ID: 0.53 (mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
2,4-D	1 2	16.85 15.78	16.78 15.74	16.92 15.88	245 679	177
2,4-DB	1 2	19.34 18.36	19.31 18.29	19.45 18.43	1210 2760	128

Sj 6/3/93

9613428.0474

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Pesticides/PCB Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for organochlorine pesticides/PCB analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met, however, the reported values were not adjusted to reflect the extraction activities as noted in the minor deficiencies.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 28 determinations reported. Out of the 28 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

Detection Limits

The detection limits reported did not reflect the GPC extraction that was performed. Therefore detection limits were multiplied by a factor of two on the result form.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0476

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613428.0477

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0478

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561	REVIEWER: CS	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Organochlorine Pesticides/PCBs			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	—	B07KR7	need to multiply the D.L. by 2

9613428.0480

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613428.0481

1D

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: R0224-9DB608075
%Moisture: 9.41 decanted: (Y/N) N Date Received: 02/20/93
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/23/93
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/05/93
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	~~1.88~~ 3.8	U
319-85-7	beta-BHC	~~1.88~~ 3.8	U
319-86-8	delta-BHC	~~1.88~~ 3.8	U
58-89-9	gamma-BHC (Lindane)	~~1.88~~ 3.8	U
76-44-8	Heptachlor	~~1.88~~ 3.8	U
309-00-2	Aldrin	~~1.88~~ 3.8	U
1024-57-3	Heptachlor epoxide	~~1.88~~ 3.8	U
959-98-8	Endosulfan I	~~1.88~~ 3.8	U
60-57-1	Dieldrin	~~3.64~~ 7.3	U
72-55-9	4,4'-DDE	~~3.64~~ 7.3	U
72-20-8	Endrin	~~3.64~~ 7.3	U
33213-65-9	Endosulfan II	~~3.64~~ 7.3	U
72-54-8	4,4'-DDD	~~3.64~~ 7.3	U
1031-07-8	Endosulfan sulfate	~~3.64~~ 7.3	U
50-29-3	4,4'-DDT	~~3.64~~ 7.3	U
72-43-5	Methoxychlor	18.8 37.6	U
53494-70-5	Endrin ketone	~~3.64~~ 7.3	U
7421-36-3	Endrin Aldehyde	~~3.64~~ 7.3	U
5103-71-9	alpha-Chlordane	~~1.88~~ 3.8	U
5103-74-2	gamma-Chlordane	~~1.88~~ 3.8	U
8001-35-2	Toxaphene	~~188~~ 376	U
12674-11-2	Aroclor-1016	~~36.4~~ 72.8	U
11104-28-2	Aroclor-1221	~~73.9~~ 148	U
11141-16-5	Aroclor-1232	~~36.4~~ 72.8	U
53469-21-9	Aroclor-1242	~~36.4~~ 72.8	U
12672-29-6	Aroclor-1248	~~36.4~~ 72.8	U
11097-69-1	Aroclor-1254	~~36.4~~ 72.8	U
11096-82-5	Aroclor-1260	~~36.4~~ 72.8	U

FORM I PEST 3/90

G 6/4/93

9613428.0482

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/3/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: Soil BOTKR7		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Data Summary	—	—	—
Chain-of-Custody	—	—	—
QC Summary			
Surrogate report	—	—	—
MS/MSD report	—	—	—
Blank summary report	—	—	—
Sample Data			
Sample reports	—	—	—
Chromatograms	—	—	—
GC integration reports	—	—	—
Worksheets	—	—	—
UV traces from GPC	—	—	—
GC/MS confirmation spectra	—	—	—
Standards Data			
Pesticides Evaluation Standards Summary	—	—	—
Pesticides/PCB Standards Summary	—	—	—
Pesticides/PCB identification	—	—	—
Pesticides standard chromatograms	—	—	—
Raw QC Data			
Blank analysis report forms and chromatograms	—	—	—
MS/MSD report forms and chromatograms	—	—	—

not necessary 9/14/93

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	—	—
Reduction formulae	—	—	—
Instrument time logs	—	—	—
Chemist notebook pages	—	—	—
Sample preparation sheets	—	—	—

not necessary 6/4/93 g

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? Yes No (N/A)

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? Yes No (N/A)

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes No (N/A)

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? Yes No (N/A)

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? Yes No (N/A)

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 h of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72-h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72 h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every five samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors ~~<10.0%~~ <20 (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	(No)	N/A
Do any samples show nondetects for surrogates?	Yes	(No)	N/A
Are any method blank surrogates out of specification?	Yes	(No)	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	(Yes)	No	N/A
Are MS/MSD recoveries within specification?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	(N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

no positive detects.

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

See comment 1.

Are results and quantitation limits calculated properly?	Yes	(No)	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	(Yes)	No	N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The moisture % was taken into consideration when calculating detection limits, however, the sample had been GPCd. So the detection limits are 2 times the reported limits.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3561	REVIEWER: C Jensen	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Organochlorine Pesticides / PCBs			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	Pest/PCB	~~04~~ 03/16/93	2/23/93	3/5/93	7	10	none

9613428.0492

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Semivolatile Organics Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for semivolatile organics analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 64 determinations reported. Out of the 64 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

An aldol condensation product, 4-hydroxy-4-methyl-2-pentanone was detected in sample B07KR7 at 3400 ug/kg and was qualified as unusable (R).

MINOR DEFICIENCIES

There were no minor deficiencies identified during the validation.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0495

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0497

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 35601	REVIEWER: GJ	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Semivolatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4-hydroxy-4-methyl 2-pentanone	R	B07KR7	TIC is an aldol product

9613428.0499

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: W6101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: 9.41 decanted: (Y/N) N Date Extracted: 02/23/93
Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 03/08/93
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
108-95-2	Phenol	730	U
111-44-4	bis(2-Chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
95-48-7	2-Methylphenol	730	U
108-60-1	2,2'-oxybis(1-Chloropropane)	730	U
106-44-5	4-Methylphenol	730	U
621-64-7	N-Nitroso-di-n-propylamine	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	bis(2-Chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	730	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	730	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	730	U
208-96-8	Acenaphthylene	730	U
606-20-2	2,6-Dinitrotoluene	730	U
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	730	U

SJ 6/4/93

9613428.0501

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 30 (g/ml) G Lab File ID: W6101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: 9.41 decanted: (Y/N) N Date Extracted: 02/23/93
Concentrated Extract Volume:1000.00 (uL) Date Analyzed: 03/08/93
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.84

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	730	U
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
7005-72-3	4-Chlorophenyl-phenyl ether	730	U
86-73-7	Fluorene	730	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	730	U
101-55-3	4-Bromophenyl-phenylether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
91-94-1	3,3'-Dichlorobenzidine	730	U
56-55-3	Benzo(a)anthracene	730	U
218-01-9	Chrysene	730	U
117-81-7	Bis(2-Ethylhexyl)phthalate	730	U
117-84-0	Di-n-octylphthalate	730	U
205-99-2	Benzo(b)fluoranthene	730	U
207-08-9	Benzo(k)fluoranthene	730	U
50-32-8	Benzo(a)pyrene	730	U
193-39-5	Indeno(1,2,3-cd)pyrene	730	U
53-70-3	Dibenz(a,h)anthracene	730	U
191-24-2	Benzo(g,h,i)perylene	730	U

6/4/93

9613428.0502

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Sample Number
BC7KR7

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 00123-42-2	2-PENTANONE 4-HYDROXY-4-METH	BNA	6.96	3400 ~~J~~BN
2.	UNKNOWN	"	35.71	360 J
3.	"	"	36.66	330 J
4.	"	"	37.56	520 J
5.	UNKNOWN HYDROCARBON	"	39.43	340 J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
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15.				
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30.				

9/6/4/93

9613428.0503

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/3/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: Soil B07KR7		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative			
Data Summary			
Chain-of-Custody			
QC Summary			
Surrogate report			
MS/MSD report			
Blank summary report			
GC/MS tuning report			
Internal standard summary report			
Sample Data			
Sample reports			
TIC reports for each sample			
RIC reports for all samples			
Raw and corrected spectra for all detected results			
Raw and corrected library search data for all reported TIC			
Quantitation and calculation data for all TIC			
Standards Data			
Initial calibration report			
RIC and quantitation reports for initial calibration			
Continuing calibration reports			
RIC and quantitation reports for cont. calibrations			
Internal standard summary report			
Raw QC Data			
Tuning report, spectra and mass lists			
Blank analysis reports			
TIC reports for all blanks			
RIC and quantitation reports for blanks			
Raw and corrected spectra for all detected results in blanks			
Raw and corrected library search data for all reported TIC			
Quantitation and calculation data for all TIC			
MS/MSD report forms			

not necessary CJ 6/3/93

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	—	—	—
Additional Data			
Moisture/% solids data sheets	—	—	—
Reduction formulae	—	—	—
Instrument time logs	—	—	—
Chemist notebook pages	—	—	—
Sample preparation sheets	—	—	—

not necessary cj 6/3/93

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

see comment 1

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results <10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results <5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? 5/6/4/93 ~~Yes~~ No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

no TCL detected

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	**Yes**	**No**	**N/A**
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	**Yes**	**No**	**N/A**
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

See comment 2.

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? (Yes) No N/A

Were project specific data quality objectives met for this analysis? (Yes) No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. Bis(2-Ethylhexyl) phthalate was detected in the blank at 1000 ug/kg but was not detected in the sample. No qualification is necessary.

2. An aldol condensation compound, 4-hydroxy-4-methyl-2-pentanone was detected at 3400 ug/kg and was qualified as unusable (R)

9613128.0512

HOLDING TIME SUMMARY - FORM B-1

SDG: 35561	REVIEWER: C. Jensen	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Semivolatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	SVOA	2/16/93	2/23/93	3/8/93	7	13	none

9613428.0613

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Volatile Organic Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for volatile organic analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of 33 determinations reported. Out of the 33 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The were no major deficiencies identified during validation.

MINOR DEFICIENCIES

There were no minor deficiencies identified during validation.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0515

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613428.0516

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0517

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 35601	REVIEWER: CJ	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
	None		

9613428.0519

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KR7

Lab Name: S-CUBED Contract: 32359-79
Lab Code: S3 Case No.: 92-451 SAS No.: SDG No.: 3561
Matrix: (soil/water) SOIL Lab Sample ID: 3561-01
Sample wt/vol: 5.00 (g/ml)G Lab File ID: CW101
Level: (low/med) LOW Date Received: 02/20/93
%Moisture: not dec. 9.41 Date Analyzed: 02/25/93
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.00
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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	U
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	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethyl Benzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

S 6/3/93

9613428.0521

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Sample Number
B07KR7

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA		
2.				
3.				
4.				
5.				
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30.				

CJ 6/13/93

9613428.0522

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: North Slope ERA	REVIEWER: cj	DATE: 6/3/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: Soil B07KR7		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Data Summary	—	—	—
Chain-of-Custody	—	—	—
QC Summary			
Surrogate report	—	—	—
MS/MSD report	—	—	—
Blank summary report	—	—	—
GC/MS tuning report	—	—	—
Internal standard summary report	—	—	—
Sample Data			
Sample reports	—	—	—
TIC reports for each sample	—	—	—
RIC reports for all samples	—	—	—
Raw and corrected spectra for all detected results	—	—	—
Raw and corrected library search data for all reported TIC	—	—	—
Quantitation and calculation data for all TIC	—	—	—
Standards Data			
Initial calibration report	—	—	—
RIC and quantitation reports for initial calibration	—	—	—
Continuing calibration reports	—	—	—
RIC and quantitation reports for cont. calibrations	—	—	—
Internal standard summary report	—	—	—
Raw QC Data			
Tuning report, spectra and mass lists	—	—	—
Blank analysis reports	—	—	—
TIC reports for all blanks	—	—	—
RIC and quantitation reports for blanks	—	—	—
Raw and corrected spectra for all detected results in blanks	—	—	—
Raw and corrected library search data for all reported TIC	—	—	—

not necessary cj 6/3/93

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC	—	—	—
MS/MSD report forms	—	—	—
RIC and quantitation reports for MS/MSD	—	—	—
Additional Data			
Moisture/% solids data sheets	—	—	—
Reduction formulae	—	—	—
Instrument time logs	—	—	—
Chemist notebook pages	—	—	—
Sample preparation sheets	—	—	—

not necessary
ej 6/3/93

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? Yes No N/A

Do all tunes on all instruments meet the tuning criteria? Yes No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No N/A

Has the laboratory made any calculation or transciption errors? Yes No N/A

Have the proper significant figures been reported? Yes No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? Yes No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes No N/A

Are all RRF values ≥0.05 (2/88 SOW)? Yes No N/A

gj 6/3/93

Are all applicable RSD values ≤20.5% (3/90 SOW)?	See comment 1 Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	See comment 2 Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	See comment 3 Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The %RSD were > 20.5, only for the compounds that exhibit erratic behavior. No qualification of the data is necessary.

2. The initial calibration was run just prior to sample analysis, so a separate CCAL was not submitted.

3. The blank detected 2-butanone, however, it was not detected in the sample. No qualification of the data is necessary.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3561	REVIEWER: C. Jensen	DATE: 6/3/93	PAGE 1 OF 1
COMMENTS: Volatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	VOA	2/16/93	—	2/25/93	—	9	none

9613428.0532

MEMORANDUM

TO: North Slope ERA Project QA Record June 9, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Total Recoverable Petroleum Hydrocarbon Analysis Data Validation Summary for 3561-SCU-111

INTRODUCTION

This memo presents the results of data validation on data package 3561-SCU-111 consisting of one soil sample submitted for total recoverable petroleum hydrocarbon analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 418.1. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KR7	02/16/93	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of one (1) determination reported. Out of the one (1) determination reported, it was deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

There were no minor deficiencies identified requiring rejection of the data.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613428.0534

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613428.0536

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3561	REVIEWER: S	DATE: 6/4/93	PAGE 1 OF 1
COMMENTS: TRPH			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

no qualification of results

9613428.0538

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613428.0539

Analyte:	TRPH
Method:	418.1
Technique:	IR Spec.
DATE:	2/24/93
Analyst:	LC/EE
Instr:	P&E IR Spec.
Case:	92-451
Lot(s):	3561

Standards

Source:	S-CUBED/EL4250
Corr. Coef.	0.99993

Std.	Abs	Conc
Blank	0	0
#1	0.037	20
#2	0.069	40
#3	0.135	80
#4	0.271	160
#5	0.51	300
#6		

Smpl Aliquot:	0.020 Kg or L
Final Volume:	0.1 L

Concs:	p.p.m.
Reagent #1	20
#2	40
#3	80
#4	160
#5	300
#6	

Detection Limit 20mg/kg

S-Cubed Sample ID	Client Sample ID	Abs.	Conc. (ug/ml)	Dil. Factor	SAMPLE Conc.	Detection Limit	% Mois.	(mg/kg) Final CONC.
EBS0223	EBS0223	0	0.0000	1	0.0000	20	0	0
LCSS0223	LCSS0223	0.269	159.2353	1	796.1763	20	0	796
3561-01	B07KR7	0.022	13.0230	1	65.1148	20	9.41	72
3561-01REP	B07KR7REP	0.021	12.4310	1	62.1550	20	9.41	69
3561-01MS	B07KR7MS	0.304	179.9536	1	899.7680	20	9.41	993

gj 6/4/93

3561 STRP.WQ1

9613428.0540

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9613428.0541

TRPH

~~HERBICIDE~~ DATA VALIDATION CHECKLIST - FORM A-4

SJ 6/4/93

PROJECT: North Slope ERA	REVIEWER: SJ	DATE: 6/4/93
LABORATORY: S-Cubed	CASE: 92-451	SDG: 3561
SAMPLES/MATRIX: B07KR7 / Soil		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

not necessary SJ 6/4/93

Data Package Item	Present?: Yes	No	N/A
Case Narrative			
Data Summary			
Chain of Custody Forms			
Sample Analysis Request			
QC Summary			
Surrogate Recovery			
MS/MSD Recovery			
Method Blank Summary			
Sample Data			
Sample Results			
Chromatograms for all samples/extracts			
Quantitation sheets for all samples/extracts			
Extraction data sheets for all samples/extracts			
Instrument time/run logs for all samples/extracts			
Standards Data			
Initial Calibration standard concentrations			
Initial Calibration summary of RRF/RSD data			
Chromatograms for all initial cal. standards			
Quantitation sheets for all initial cal. standards			
Instrument time/run logs for all samples/extracts			
Calibration standard traceability data			
Raw QC Data			
Blanks			
Laboratory Blank results			
Chromatograms for all laboratory blanks			
Quantitation reports for all laboratory blanks			
Matrix Spike/Matrix Spike Duplicates			
MS/MSD Results			
Chromatograms			
Quantitation reports			

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% Solids data sheets		___	___	___
Calculation formulae		___	___	___
Instrument Run/Time Logs		___	___	___
Chemist notebook pages		___	___	___
Sample preparation sheets		___	___	___

not necessary 6/4/93 cj

2. HOLDING TIMES

Were all samples extracted within holding times? Yes No N/A

Were all samples analyzed within holding times? Yes No N/A

ACTION: If the extraction or analytical holding times were exceeded, but not by a factor of two, qualify all affected results as estimated (J for detects and UJ for nondetects). Otherwise, reject all nondetects (R) and qualify all detects as estimated (J).

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration conducted prior to sample analysis? Yes No N/A

Are all RSD values <20%? Yes No N/A

ACTION: If the RSD criteria were not met, qualify all results as estimated (J for detects and UJ for nondetects).

3.2 CONTINUING CALIBRATION

Have continuing calibrations been conducted at the proper frequency? Yes No N/A

Are the RRFs within ±15% of the initial calibration average RF? Yes No N/A

Are the RT values for the calibration compounds within the retention time windows? Yes No N/A

ACTION: If the percent difference criteria or retention time windows are not met, qualify all associated data as estimated (J for detects, UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed at least one method blank per matrix in the sample batch? Yes No N/A

Are target compounds present in the laboratory blanks? Yes (No) N/A

ACTION: Qualify all detected results in the samples that are <5 times the amount in any laboratory blank as nondetects (U).

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected results in the samples that are <5 times the amount in any valid field blank as nondetects (U).

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes No (N/A)

Are any surrogates nondetected? Yes No (N/A)

ACTION: Surrogate recoveries out of specification will require qualification of all associated data as estimated (J for detects and UJ for nondetects). Surrogate recoveries that are 0% will require qualification of all detects as estimated (J) and the rejection of all nondetects (R).

5.2 MATRIX SPIKE RECOVERY

Has the laboratory conducted a MS/MSD analysis per matrix for the sample group? MS only OK 9 6/14/93 (Yes) No N/A

Are there calculation or transcription errors? Yes No N/A

Are MS recoveries within specification? Yes No N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES MS only 9614493

Are there any calculation or transcription errors? Yes No N/A

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATES

Are the field duplicate RPDs acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are the field split RPDs acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Are positive results within the retention time windows? Yes No N/A

Are positive results unaffected by interfering peaks? Yes No N/A

ACTION: If positive results are not within the retention time windows qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no potential interferences are present, report the CRQL and if the misidentified peak interferes with the potential detection of a target peak then the reported value is the quantitation limit and the result is qualified as estimated (UJ).

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory reported sample quantitation limits within 5xCRQL levels?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and discuss in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3561	REVIEWER: CJensen	DATE: 6/4/93	PAGE 1 OF 1
COMMENTS: TRPH			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KR7	TRPH	2/16/93	2/23/93	2/24/93	7	1	none