9613424.1464

0043735

B07GP1-PAT-206

ENVIRONMENTAL SOIL REPORT

Form EPRS-A
Page 1 of 2
Part 1 of 1

Date _____
Agency Identification Number SF-1361-EK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

JAN 1993
RECEIVED
OSM DMO

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analytical Results

Parameter Name / Analysis Date / Method / Prep Method	Field Number / Lab Number	Units	B07GP1 CLP 11610	B07GP4 CLP 11611	B07KP4 CLP 11612	B07KP5 CLP 11613	B07KP8 CLP 11614			* Limit of Detection
Fluoride (F) 11/17/1992 300.0 [1]		µg/g	3.	ND*	2.	1.	4.			1.
Chloride (Cl) 11/17/1992 300.0 [1]		µg/g	15.	2.	7.	7.	52.			1.
Sulfate (SO_4) 11/17/1992 300.0 [1]		µg/g	1300	1.	830	550	150			1.
Phosphate (PO_4-P) 11/17/1992 300.0 [1]		µg/g	ND*	ND*	ND*	ND*	ND*			1.
Nitrates (NO_3-N + NO_2-N) 11/27/1992 353.2 [1]		µg/g	25.	ND*	2.	2.	8.			1.
Chromium VI 11/12/1992 7196 [2] 3060M [2]		µg/g	ND*	ND*	ND*	ND*	ND*			1.

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
~~* Analyses completed on or before this date.~~

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

RECEIVED
NOV 1992
ENVIRONMENTAL MANAGEMENT

RECORD COPY

Analyst: Dorene A. Kley

Reviewer: Michael E. Richmond

Laboratory Supervisor: Michael P. Beesley

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Date _____

Agency Identification Number SF-1361-EK

Method Index **-- Method Reference --**

[1] EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", March 1983 (Modified for use with soils.)

[2] SW-846 "Test Methods for Evaluating Solid Waste", 3rd Edition, November 1986.

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

DATA CHEM LABORATORIES

A SORENSON COMPANY

SDG NARRATIVE
VOA FRACTION

CASE NO.: WHC39
SDG NO.: WHC039
SAMPLE NO(s). for VOA analysis: B07GP1, B07GP4, B07KP4, B07KP5, B07KP8, B07KP8MS, B07KP8MSD

WESTINGHOUSE-HANFORD CONTRACT
DATACHEM LABS.

I. 1. CASE WHC39 DataChem Laboratories received five soil samples for VOA analysis which have been assigned the SDG designation WHC039 This report includes the data for the five samples received for this SDG.

I. 2. VOA Analysis The soil samples were analyzed as soil samples according to EPA SOW 3/91.

2.1 The surrogate recovery for bromofluorobenzene did not meet EPA acceptance criteria in the matrix spike analysis. All other system monitoring compound and internal standard recoveries were within the required QC limits. All samples were analyzed within hold time limits.

I. 3. Matrix Spike and Matrix Spike Duplicate Analyses The matrix spike and matrix spike duplicate analyses for the soil samples were performed using sample B07KP8. All matrix spike parameters were within QC limits.

SDG Narrative authorized by: Thomas J. Masoca

Date: 1-21-93

SALT LAKE CITY OFFICE
960 WEST LeVOY DRIVE
SALT LAKE CITY, UTAH 84123-2547
801 266-7700, FAX 801 268-9992

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

BALTIMORE OFFICE
10 JULIET LANE, SUITE #203
BALTIMORE, MARYLAND 21236-1220
410 494-3612 FAX 513 733-5347

RICHLAND OFFICE
313 WELLSIAN WAY
RICHLAND, WASHINGTON 99352-4116
509 943-5858 FAX 509 943-5654

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD17CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	21	B
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD17CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD18CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 1 Date Analyzed: 11/12/92

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

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

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

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD18CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 1 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHCO39

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD19CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	25	B
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD19CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD20CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	73	B
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

EPA SAMPLE NO.

B07KP5

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD20CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD21CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	40	B
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD21CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

CASE NARRATIVE
SEMIVOLATILE FRACTION

CASE NO. WHC39
SDG NO. WHCS39
SAMPLE NO.(s) for semivolatile analysis: B07GP1, B07GP4, B07KP4, B07KP4MS, B07KP4MSD, B07KP5, G07KP8.

WESTINGHOUSE HANFORD CORP. PURCHASE ORDER NO. MBH-SVV-060648
DATACHEM LABORATORIES

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

John R. Gumpper, Section Manager date 12-30-92

I. 1. Case WHC39: DataChem Laboratories has received a total of five soil samples for Case WHC39. This report includes data for the samples listed above which have been assigned the SDG designation WHCO39. DataChem Laboratories expects to be paid for all analyses listed above.

I. 2. Semivolatile Analysis: All samples in this SDG were analyzed and reported for the BNA fraction using the water protocol specified in the SOW 2/88. All of the surrogate recoveries and internal standard area responses met the required QC criteria, and all samples were extracted and analyzed within the contract-required holding times. No dilutions or special procedures were required for these analyses.

I. 3. Matrix Spike and Matrix Spike Duplicate Analyses
The soil matrix spike and matrix spike duplicate analyses for the BNA fraction were performed using sample B07KP4. Recoveries and reproducibility were within expected ranges on all compounds.

No water samples were received with this SDG; therefore, no water matrix spiking data is included in this report.

Case Narrative Authorized by: _____ date 12-30-9

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	37	J
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-Methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	110	J
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	120	J
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B07GP1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 15

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATION PRODUCT	9.29	240	ABJ
2.	ALDOL CONDENSATION PRODUCT	9.67	530	AJ
3.	ALDOL CONDENSATION PRODUCT	10.04	600	ABJ
4.	ALDOL CONDENSATION PRODUCT	10.27	200	AJ
5.	ALDOL CONDENSATION PRODUCT	11.04	380	ABJ
6.	ALDOL CONDENSATION PRODUCT	11.39	100	AJ
7.	ALDOL CONDENSATION PRODUCT	11.50	160	AJ
8.	ALDOL CONDENSATION PRODUCT	12.27	95	AJ
9.	UNKNOWN OXY HYDROCARBON	29.32	82	J
10.	UNKNOWN LONG-CHAIN HYDROCARB	30.17	77	J
11.	ALKANE @ C27	32.31	110	J
12.	UNKNOWN POLYCYCLIC HYDROCARB	33.87	120	J
13.	ALKANE @ C29	35.24	270	J
14.	UNKNOWN POLYCYCLIC HYDROCARB	35.81	110	J
15.	ALKANE @ C31	39.47	120	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	810	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	810	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	810	U
83-32-9	Acenaphthene	330	U

9613424_1483

1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	810	U
100-02-7	4-Nitrophenol	810	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	39	J
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	810	U
534-52-1	4,6-Dinitro-2-Methylphenol	810	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	810	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	70	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B07GP4

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 7

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN OXY HYDROCARBON	9.17	130	J
2.		ALDOL CONDENSATION PRODUCT	9.40	260	ABJ
3.		ALDOL CONDENSATION PRODUCT	9.75	160	AJ
4.		ALDOL CONDENSATION PRODUCT	10.12	490	ABJ
5.		ALDOL CONDENSATION PRODUCT	10.35	140	AJ
6.		ALDOL CONDENSATION PRODUCT	11.12	250	ABJ
7.	111-02-4	SQUALENE	34.36	68	JN

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHCO39

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	850	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	850	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	850	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	850	U
100-02-7	4-Nitrophenol	850	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	850	U
534-52-1	4,6-Dinitro-2-Methylphenol	850	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	850	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	280	BJ
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	350	U
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B07KP4

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 11

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.45	340	ABJ
2.		ALDOL CONDENSATION PRODUCT	10.19	1900	ABJ
3.		ALDOL CONDENSATION PRODUCT	10.42	1100	ABJ
4.		ALDOL CONDENSATION PRODUCT	11.14	130	AJ
5.		ALDOL CONDENSATION PRODUCT	12.34	490	AJ
6.	72-55-9	4,4'-DDE	27.79	290	JN
7.	72-54-8	4,4'-DDD	28.79	76	JN
8.	50-29-3	4,4'-DDT	29.46	260	JN
9.	111-02-4	SQUALENE	34.34	74	JN
10.		ALKANE @ C29	35.24	180	J
11.		ALKANE @ C31	39.47	92	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	850	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	850	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	850	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	850	U
100-02-7	4-Nitrophenol	850	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	850	U
534-52-1	4,6-Dinitro-2-Methylphenol	850	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	850	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	200	J
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	350	U
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B07KP5

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 7

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.40	240	ABJ
2.		ALDOL CONDENSATION PRODUCT	10.14	800	ABJ
3.		ALDOL CONDENSATION PRODUCT	10.35	150	AJ
4.		UNKNOWN OXY HYDROCARBON	26.37	120	J
5.	72-55-9	4,4'-DDE	27.79	250	JN
6.	50-29-3	4,4'-DDT	29.44	210	JN
7.		ALKANE @ C29	35.24	100	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl Phthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-Methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	63	J
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	80	J
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

Number TICs found: 8

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.39	240	ABJ
2.		ALDOL CONDENSATION PRODUCT	10.12	1100	ABJ
3.		ALDOL CONDENSATION PRODUCT	10.34	360	AJ
4.	72-55-9	4,4'-DDE	27.79	140	JN
5.		ALKANE @ C27	32.31	90	J
6.	111-02-4	SQUALENE	34.34	91	JN
7.		ALKANE @ C29	35.24	240	J
8.		ALKANE @ C31	39.49	160	J

SDG NARRATIVE
PESTICIDE/PCB ANALYSIS

CASE NUMBER: **WHC39**
SDG: WHC039
SAMPLE NUMBERS FOR PESTICIDE/PCB ANALYSIS:

B07GP1, B07GP4, B07KP4, B07KP5, B07KP8, B07GP1MS, B07GP1MSD.

EPA-CLP CONTRACT NO.: **N/A**
DATACHEM LABORATORIES

I. SDG WHC039. DataChem Laboratories received five soil samples for case WHC39 which were assigned sample delivery group WHC039.

II. Pesticide/PCB Analysis.

1. The Pesticide/PCB analysis was contracted to be analyzed and reported according to the 3/90 EPA-CLP statement of work.
2. All of the contract requirements for standardization were met on the DB-608 column analyses. Standardization requirements were met on the DB-1701 analyses with the following exceptions:
   A. Standard PEMH1: relative percent difference of all compounds exceeded 25 percent.
   B. Standard INDAMH2: relative percent difference of endosulfan I, dieldrin, endrin, 4,4'-DDD, 4,4'-DDT, methoxychlor, and decachlorobiphenyl exceeded 25 percent.
3. The "X" qualifier was used to flag the results of single component target pesticides in samples found to contain Aroclor 1254. The flag indicates that the peaks for this analyte fell within the range of peaks in the Aroclor pattern, and may not indicate the presence of this compound in the sample matrix.
4. The "Y" qualifier was used to flag the results of compounds which were detected at levels above the concentration of the high standard. The flag indicates that a dilution of the sample was not analyzed because the analysis would occur outside the analytical hold time.

III. Matrix Spike and Matrix Spike Duplicate Analyses.
The matrix spike and matrix spike duplicate analyses were performed on sample B07GP1.

IV. Pesticide Abbreviations. The abbreviations used by the computer are summarized below:

TOX for Toxaphene
HEPT EPOX for Heptachlor Epoxide
ENDO 1 for Endosulfan I
ENDO II for Endosulfan II
END ALD for Endrin Aldehyde
G-CHLOR for Gamma Chlordane
A-CHLOR for Alpha Chlordane
ENDO SULF for Endosulfan Sulfate
END KET for Endrin Ketone
DCB for Decachlorobiphenyl
TCX for Tetrachloro-m-xylene
METHOX for Methoxychlor
HEPTA for Heptachlor
G-BHC for Gamma-BHC
A-BHC for Alpha-BHC
B-BHC for Beta-BHC
D-BHC for Delta-BHC

V. Certification.

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

1-19-93

Jose C. Danino, Ph.D. Date
Pesticide Section Manager

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11610

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 5 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC(Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	2.3	JPX
72-55-9	4,4'-DDE	11.	X
72-20-8	Endrin	10.	PX
33213-65-9	Endosulfan II	0.84	JPX
72-54-8	4,4'-DDD	1.4	JPX
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	3.5	U
72-43-5	Methoxychlor	0.71	JPB
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	4.9	PX
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180.	U
12674-11-2	Aroclor-1016	35.	U
11104-28-2	Aroclor-1221	71.	U
11141-16-5	Aroclor-1232	35.	U
53469-21-9	Aroclor-1242	35.	U
12672-29-6	Aroclor-1248	35.	U
11097-69-1	Aroclor-1254	210.	P
11096-82-5	Aroclor-1260	35.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11611

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 1 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC(Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	0.061	JP
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	0.55	JPB
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170.	U
12674-11-2	Aroclor-1016	33.	U
11104-28-2	Aroclor-1221	68.	U
11141-16-5	Aroclor-1232	33.	U
53469-21-9	Aroclor-1242	33.	U
12672-29-6	Aroclor-1248	33.	U
11097-69-1	Aroclor-1254	33.	U
11096-82-5	Aroclor-1260	33.	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11612

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 6 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC(Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	4.0	P
72-55-9	4,4'-DDE	150.	PY
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	1.4	JP
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	210.	PY
72-43-5	Methoxychlor	2.4	JPB
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180.	U
12674-11-2	Aroclor-1016	35.	U
11104-28-2	Aroclor-1221	71.	U
11141-16-5	Aroclor-1232	35.	U
53469-21-9	Aroclor-1242	35.	U
12672-29-6	Aroclor-1248	35.	U
11097-69-1	Aroclor-1254	35.	U
11096-82-5	Aroclor-1260	35.	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11613

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 6 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC(Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	7.5	
72-55-9	4,4'-DDE	170.	PY
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	2.2	JP
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	260.	PY
72-43-5	Methoxychlor	1.7	JPB
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180.	U
12674-11-2	Aroclor-1016	35.	U
11104-28-2	Aroclor-1221	71.	U
11141-16-5	Aroclor-1232	35.	U
53469-21-9	Aroclor-1242	35.	U
12672-29-6	Aroclor-1248	35.	U
11097-69-1	Aroclor-1254	35.	U
11096-82-5	Aroclor-1260	35.	U

9613424.1500

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11614

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 5 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC(Lindane)	1.2	JP
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	10.	P
72-55-9	4,4'-DDE	100.	PY
72-20-8	Endrin	0.69	JP
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	2.1	JP
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	96.	PY
72-43-5	Methoxychlor	1.8	JPB
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180.	U
12674-11-2	Aroclor-1016	35.	U
11104-28-2	Aroclor-1221	71.	U
11141-16-5	Aroclor-1232	35.	U
53469-21-9	Aroclor-1242	35.	U
12672-29-6	Aroclor-1248	35.	U
11097-69-1	Aroclor-1254	35.	U
11096-82-5	Aroclor-1260	35.	U

9613424.1501

DATA CHEM LABORATORIES

ANALYTICAL REPORT

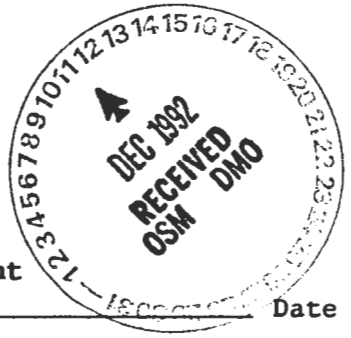
Form ARF-AL
Page 1 of 5
Part 1 of 4

Date

Agency Identification Number SF-1361-HK

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan



FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Azinphos Methyl ug/kg GC/FPD	Bolstar ug/kg GC/FPD	Chlorpyrifos ug/kg GC/FPD	Coumaphos ug/kg GC/FPD	Demeton-S ug/kg GC/FPD	Diazinon ug/kg GC/FPD	Dichlorvos ug/kg GC/FPD	Disulfoton ug/kg GC/FPD
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	82
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GP1	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GP4	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	83
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	78
B07KP4	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KP5	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07KP8	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

RECORD COPY

Analyst: Vicki Hoe-Lin Tsai

Reviewer: Guangyue Liu

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ethoprop ug/kg GC/FPD	Fensulfothion ug/kg GC/FPD	Fenthion ug/kg GC/FPD	Merphos ug/kg GC/FPD	Mevinphos ug/kg GC/FPD	Naled ug/kg GC/FPD	Parathion methyl ug/kg GC/FPD	Phorate ug/kg GC/FPD	
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	72	76	
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76	81	
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	77	80	
B07KP4	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ronnel ug/kg GC/FPD	Stirophos ug/kg GC/FPD	Dimethoate ug/kg GC/FPD	EPN ug/kg GC/FPD	Malathion ug/kg GC/FPD	Monocrotophos ug/kg GC/FPD	Parathion ug/kg GC/FPD	SULFOTEP ug/kg GC/FPD	
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP4	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

MLC 5-19-95

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	TEPP ug/kg GC/FPD								
QC-90973-1	QC-90973-1	SOIL	ND*								
BL-90973-1	BL-90973-1	SOIL	ND*								
B07GP1	CLP 11610	SOIL	ND*								
B07GP4	CLP 11611	SOIL	ND*								
B07GP4MS	CLP 11611MS	SOIL	ND*								
B07GP4MSD	CLP 11611MSD	SOIL	ND*								
B07KP4	CLP 11612	SOIL	ND*								
B07KP5	CLP 11613	SOIL	ND*								
B07KP8	CLP 11614	SOIL	ND*								
* Limit of Detection			6.7								

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

JV MLC 5-18-95

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____

Agency Identification Number SF-1361-HK

General Set Comments

Method blank,LCS,method spike,method spike duplicate (using sample CLP 11611 spiked at 60 ug/kg) and surrogate (TPP spiked at 300 ug/kg) were performed with the samples. The method blank was free of contamination. The recoveries (%) of QC samples and surrogate were as follows:

	Phorate	Disulfoton	Parathion-Methyl	TPP
LCS	127	137	120	97
MS	135	138	127	109
MSD	133	130	128	107
Blank				96
CLP11610				117
CLP11611				101
CLP11612				107
CLP11613				110
CLP11614				118

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

MF 5-18-95

DATACHEM LABORATORIES
960 WEST LEVOY DRIVE
SALT LAKE CITY, UTAH 84123

Company: WESTINGHOUSE HANFORD

Case #: WHC39 SDG: WHCI39 DCL SET ID: SF-1361 AK-CK

Fraction: Inorganic

Client Sample #	Lab Sample #	EPA Sample #	Matrix	Analyzed for
B07GP1	CLP 11610	M11610	SOIL	P,F,CV
MATRIX DUPL	CLP 11610	M11610D	SOIL	P,F,CV
MATRIX SPIKE	CLP 11610	M11610S	SOIL	P,F,CV
B07GP4	CLP 11611	M11611	SOIL	P,F,CV
B07KP4	CLP 11612	M11612	SOIL	P,F,CV
B07KP5	CLP 11613	M11613	SOIL	P,F,CV
B07KP8	CLP 11614	M11614	SOIL	P,F,CV

Analysis Key
P ICP
F GFAA
CV Mercury
AS Cyanide

MC 5-15-95

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11610

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11610

Level (low/med): LOW Date Received: 11/05/92

% Solids: 94.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	12.7	U	N	P
7440-38-2	Arsenic	11.1			F
7440-39-3	Barium	120			P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	14600			P
7440-47-3	Chromium	17.9			P
7440-48-4	Cobalt	8.8	B		P
7440-50-8	Copper	53.5			P
7439-89-6	Iron	20800			P
7439-92-1	Lead	20.1		S*	F
7439-95-4	Magnesium	7250			P
7439-96-5	Manganese	424			P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	18.1			P
7440-09-7	Potassium	2230			P
7782-49-2	Selenium	0.21	U	NW	F
7440-22-4	Silver	0.84	U		P
7440-23-5	Sodium	271	B	E	P
7440-28-0	Thallium	0.60	B		F
7440-62-2	Vanadium	36.0			P
7440-66-6	Zinc	72.2			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11611

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11611

Level (low/med): LOW Date Received: 11/05/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	138			P
7440-36-0	Antimony	12.0	U	N	P
7440-38-2	Arsenic	0.40	U		F
7440-39-3	Barium	1.5	B		P
7440-41-7	Beryllium	0.40	U		P
7440-43-9	Cadmium	1.0	U		P
7440-70-2	Calcium	26.9	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	2.2	U		P
7440-50-8	Copper	1.4	U		P
7439-89-6	Iron	185			P
7439-92-1	Lead	0.32	B	*	F
7439-95-4	Magnesium	12.8	U		P
7439-96-5	Manganese	4.3			P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	5.8	U		P
7440-09-7	Potassium	206	U		P
7782-49-2	Selenium	0.20	U	N	F
7440-22-4	Silver	0.80	U		P
7440-23-5	Sodium	7.5	B	E	P
7440-28-0	Thallium	0.20	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	1.8	U		P
	Cyanide				NR

Color Before: WHITE Clarity Before: Texture: CORASE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

4

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11612

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11612

Level (low/med): LOW Date Received: 11/05/92

% Solids: 93.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13300			P
7440-36-0	Antimony	12.8	U	N	P
7440-38-2	Arsenic	7.3			F
7440-39-3	Barium	163			P
7440-41-7	Beryllium	0.61	B		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	15000			P
7440-47-3	Chromium	20.2			P
7440-48-4	Cobalt	10.5	B		P
7440-50-8	Copper	22.3			P
7439-89-6	Iron	24400			P
7439-92-1	Lead	190		*	F
7439-95-4	Magnesium	7580			P
7439-96-5	Manganese	524			P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	20.8			P
7440-09-7	Potassium	2170			P
7782-49-2	Selenium	0.21	U	NW	F
7440-22-4	Silver	0.85	U		P
7440-23-5	Sodium	367	B	E	P
7440-28-0	Thallium	0.24	B		F
7440-62-2	Vanadium	45.5			P
7440-66-6	Zinc	117			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11613

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11613

Level (low/med): LOW Date Received: 11/05/92

% Solids: 94.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13900			P
7440-36-0	Antimony	13.9		N	P
7440-38-2	Arsenic	6.3			F
7440-39-3	Barium	187			P
7440-41-7	Beryllium	0.60	B		P
7440-43-9	Cadmium	1.9			P
7440-70-2	Calcium	15100			P
7440-47-3	Chromium	22.4			P
7440-48-4	Cobalt	11.4			P
7440-50-8	Copper	24.2			P
7439-89-6	Iron	30300			P
7439-92-1	Lead	26.5		S*	F
7439-95-4	Magnesium	7810			P
7439-96-5	Manganese	533			P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	19.6			P
7440-09-7	Potassium	2220			P
7782-49-2	Selenium	0.21	U	NW	F
7440-22-4	Silver	0.85	U		P
7440-23-5	Sodium	373	B	E	P
7440-28-0	Thallium	0.21	U		F
7440-62-2	Vanadium	47.3			P
7440-66-6	Zinc	161			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

MC

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11614

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11614

Level (low/med): LOW Date Received: 11/05/92

% Solids: 95.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18100			P
7440-36-0	Antimony	12.6	U	N	P
7440-38-2	Arsenic	9.3			F
7440-39-3	Barium	148			P
7440-41-7	Beryllium	0.76	B		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	17300			P
7440-47-3	Chromium	24.1			P
7440-48-4	Cobalt	11.5			P
7440-50-8	Copper	29.2			P
7439-89-6	Iron	27300			P
7439-92-1	Lead	22.7		S*	F
7439-95-4	Magnesium	8960			P
7439-96-5	Manganese	497			P
7439-97-6	Mercury	0.05	U		CV
7440-02-0	Nickel	20.3			P
7440-09-7	Potassium	2830			P
7782-49-2	Selenium	0.21	U	NW	F
7440-22-4	Silver	0.84	U		P
7440-23-5	Sodium	578	B	E	P
7440-28-0	Thallium	0.21	U		F
7440-62-2	Vanadium	46.1			P
7440-66-6	Zinc	108			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

FORM I - IN

MC

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 3
Part 1 of 2

DEC 22 1992

Date

Agency Identification Number SF-1361-IK

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis December 14, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	2,4-D µg/g	2,4-DB µg/g	2,4,5-T µg/g	2,4,5-TP (Silvex) µg/g	Dalapon µg/g	Dicamba µg/g	Dichloroprop µg/g	Dinoseb µg/g	
QC-90974-1	QC-90974-1	SOIL	.15	ND*	.058	.078	ND*	ND*	ND*	ND*	
BL-90974-1	BL-90974-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP4	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8MS	CLP 11614MS	SOIL	1.6	ND*	.63	.80	ND*	ND*	ND*	ND*	†
B07KP8MSD	CLP 11614MSD	SOIL	1.5	ND*	.58	.75	ND*	ND*	ND*	ND*	†
* Limit of Detection			.02	.1	.01	.01	.1	.01	.02	.02	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

Analyst: John Meikle

Reviewer: Guangyue Liu

Laboratory Supervisor: Jose C. Danino for JCD

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date DEC 22 1992

Agency Identification Number SF-1361-IK

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis December 14, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	MCPA µg/g	MCPP µg/g	DCAA µg/g						
QC-90974-1	QC-90974-1	SOIL	ND*	ND*	.027						
BL-90974-1	BL-90974-1	SOIL	ND*	ND*	.036						
B07GP1	CLP 11610	SOIL	ND*	ND*	.081						
B07GP4	CLP 11611	SOIL	ND*	ND*	.083						
B07KP4	CLP 11612	SOIL	ND*	ND*	.036						
B07KP5	CLP 11613	SOIL	ND*	ND*	.084						
B07KP8	CLP 11614	SOIL	ND*	ND*	.097						
B07KP8MS	CLP 11614MS	SOIL	ND*	ND*	.94						†
B07KP8MSD	CLP 11614MSD	SOIL	ND*	ND*	.88						†
* Limit of Detection			5	5	SURR						

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date DEC 22 1992

Agency Identification Number SF-1361-IK

General Set Comments

Samples were spiked with 2,4-dichlorophenylacetic adic (DCAA) as surrogate at 0.05 µg/g.

Laboratory control sample, matrix spike and matrix spike duplicate were spiked with 0.10 µg/g 2,4-D and 0.05 µg/g 2,4,5-T and 2,4,5-TP.

There was insufficient sample for proper MS/MSD preparation. MS and MSD samples were prepared by spiking onto 5.0 g rather than the specified 50 g. As a result, recovered values are high by a factor of 10.

Sample Comments

Laboratory Number	-- Comment --
CLP 11614MS	Insufficient sample: 5 g extracted instead of 50 g.
CLP 11614MSD	Insufficient sample: 5 g extracted instead of 50 g.

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Date _____
Agency Identification Number SF-1361-FK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	B07GP1 CLP 11610	B07GP4 CLP 11611	B07KP4 CLP 11612	B07KP5 CLP 11613	B07KP8 CLP 11614			* Limit of Detection
Total Petroleum Hydrocarbons 11/24/1992 µg/g 418.1 [1] 3550 [2]		90	ND*	20	ND*	ND*			10

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
¹ Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: David W. Thomas

Reviewer: Rosemary H. Hanks

Laboratory Supervisor: Norman K. Christensen

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Date _____

Agency Identification Number SF-1361-FK

Method Index **-- Method Reference --**

[1] EPA-600/4-79-020 "Methods for Chemical Analysis of Water and Wastes", March 1983 (Modified for use with soils.)

[2] SW-846 "Test Methods for Evaluating Solid Waste", 3rd Edition, November 1986.

9613424.1517

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 11-3-92 Purchase Order No. _____

3. Company Name Westinghouse Hanford Co

Address PO Box 1970

Richland, WA

Person to Contact Frank Gustafson

Telephone (509) 376-1736

Fax Telephone (509) 376-6476

Billing Address (if different from above)

_____

_____

4. Sample Collection H-06-H(W,E)

Sampling Site North Slope ERA-

Industrial Process _____

Date of Collection 10-30-92 & 11-2-92 & 11-3-92

Time Collected See bottles

Date of Shipment 11-4-92

Chain of Custody No. N/A

5. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
CLP 11610	B07GP1	Soil		Glass septum 120ml - VOA (CLP)
11611	B07GP4			Amber glass 250ml - Semi VOA (CLP)
11612	B07KP4			PCB/Pests (CLP), phosphorus Pests (8140),
11613	B07KP5			Herbicides (8150)
11-4-92	~~B07KP6~~			Amber glass 120ml - ICP metals (CLP),
11614	B07KP8			AA metals (As, Pb, Se, Ti - CLP), Hg (CLP)
				Amber glass 120ml - Anions (F, Cl, PO4, SO4 - EPA 300.0)
				(NO2, NO3 - EPA 353.3), Chromium VI (EPA 218.4)
				Amber glass 120ml - TPH (EPA 418.1)

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

6. Q C REQUIREMENTS
MUST BE COMPLETED - See General Services Terms and Conditions: QC samples billed at regular sample rate

☐ METHOD QC SAMPLES (Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES (Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED (May not conform to Agency requirements)

☐ OTHER (as specified below)

_____

_____

Comments Cool 4°C

Possible Contamination and/or Chemical Hazards _____

7. Requested by _____

242

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / FAX: 801-268-9992
4388 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1493 or 513-733-5336 / FAX: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION: WHITE - LABORATORY COPY CANARY - CUSTOMER COPY

9613424.1518

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: J. G. Lucas

Company Contact: Frank Gustafson — Telephone: 376-1736

Project Designation/Sampling Locations: North Slope ERA — H-06-H (W,E) — Collection Date: 10-30-92, 11-2-92, 11-3-92

Ice Chest No.: RM # 105 — Field Logbook No.: EFL-1031

Bill of Lading/Airbill No.: 251900660 0 — Offsite Property No.: W93-0-0002-37

Method of Shipment: Emery

Shipped to: Data Chem Salt Lake City, UT

Possible Sample Hazards/Remarks: None

Sample Identification		
B07GP0		
B07GP2		
B07GP3		
B07KP7		
B07KP9	Soil -	
B07KQ0	1 - 120 ml glass septum	
B07GP1	1 - 250ml aG	
B07GP4	3 - 120ml aG	
B07KP4		
B07KP5		
B07KP8		

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)		
Relinquished by: Jonathan G. Lucas	Received by: T. Jackson	Date/Time: 11-5-92 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

243

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

A-6000-407 (12/90)

9613424.1519

SAMPLE LOG-IN SHEET

SF-1361

Lab Name: DataChem Laboratories

Received By (Print Name): Tom Jackso

Log-In Date: 11-5-92

Received By (Signature):

Case Number: WHC39

Sample Delivery Group No.: WHC 39

SAS Number:

CIRCLE THE APPROPRIATE RESPONSE:

1. Custody Seal(s) Present/Absent* Intact/Broken*
2. Custody Seal Nos.: None
3. Chain-of-Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent* — TJ 11-5-92
6. Airbill No.: 751900666 00
7. Sample Tags Present/Absent*
   Sample Tag Numbers Listed/Not Listed on Chain-of-Custody
8. Sample Condition: Intact/Broken*/Leaking*
9. Does information on custody records, traffic reports, and sample tags agree? Yes/No*
10. Date Received at Lab: 11-5-92
11. Time Received: 1200

SAMPLE TRANSFER

Fraction: Vols

Area #: Vol Lab

By: TJ

On: 11-5-92

EPA SAMPLE #	CORRESPONDING SAMPLE TAG #	CORRESPONDING ASSIGNED LAB #	MATRIX	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
B07GP1	N/A	CLP 11610	S	Acceptable
B07GP4		11611		
B07KP4		11612		
B07KP5		11613		
B07KP8		11614		

11-5-92

* If Circled, contact SMO and attach record of resolution.

11/89 Rev.

Reviewed By: Ruth E. Faulk

Date: 11/10/92

Logbook No.:

Logbook Page No.:

244

FORM DC-1

9613424.1520

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

June 28, 1993

Our ref: 893-1458
WHC/O/383

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills, MSIN H4-29
Richland, Washington 99352

ATTENTION: Ms. Brianna Colley

RE: NORTH SLOPE ERA DATA VALIDATION, TASK ORDER G93-58, TRANSMITTAL OF DATA VALIDATION PACKAGES

Dear Ms. Colley:

Enclosed are five analytical data packages including associated data validation documentation for North Slope ERA samples analyzed by the DataChem laboratory for volatile, semivolatile, chlorinated pesticide/PCB, chlorinated herbicide and phosphate pesticide organic compounds, metals, anions, and total petroleum hydrocarbons.

The data packages included in this shipment are listed as follows:

- B07GM6-DAT-193
- B07GM0-DAT-189
- B07GM1-DAT-204
- B07KQ1-DAT-220
- B07GP1-DAT-206

The validation documentation is located at the front of the data package folder. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Project Manager

Donald M. Caldwell
Project Director

Enclosures

cc: George Henckel, WHC

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Volatile Organic Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for volatile organic analysis. The samples were analyzed by the DataChem laboratory using CLP protocols. The sample identification numbers, collection dates and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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.

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 five samples were validated in this data set with a total of 165 determinations reported. Out of the 165 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

Acetone was detected in the method blank at 24 ug/kg. The associated positive sample results with concentrations less than ten times the blank concentrations have been qualified as undetected (U).

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHC039	REVIEWER: CJ	DATE: 6/18/93	PAGE 1 OF ___
COMMENTS: VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	U	all	Blank Contam.

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613424.1528

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD17CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	21	~~B~~ U
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

6/18/93

9613424_1529

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD17CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

Q

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Gu 11/18/93

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD18CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 1 Date Analyzed: 11/12/92

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

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

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

Q

U

6/18/93

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD18CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 1 Date Analyzed: 11/12/92

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

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

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

6/18/93

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD19CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	25	~~B~~ U
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

6/18/93

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD19CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD20CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 6 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	73	~~B~~ U
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Q U

6/18/93

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD21CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
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	40	~~B~~ U
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	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Q U

5/6/16/93

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 5.0 (g/mL) G Lab File ID: PD21CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: not dec. 5 Date Analyzed: 11/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

6/18/98

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: North Slope ERA	REVIEWER: GJ	DATE: 6/18/93
LABORATORY: Data Chem	CASE: WHC39	SDG: WHC039
SAMPLES/MATRIX: B07GP1, B07GP4, B07KP4, B07KP5, B07KP8		

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				✓

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		—	✓	—

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)

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 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?	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?	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

See comment 1

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

see comment 2

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. Surrogate compound bromofluorobenzene was out of control limits for sample B07K2BMS. No further qualification of the data is made, does not affect other samples.

2. There were no target compounds detected except acetone which was qualified as U in all samples due to blank contamination.

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC039	REVIEWER: C. Jensen	DATE: 6/16/93	PAGE 1 OF ___
COMMENTS: VOA			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07GP1	VOA	10/30/92		11/12/92		13	none
B07GP4	↓	11/2/92		↓		10	↓
B07KP4		↓				↓	
B07KP5							
B07KP8	↓			↓			

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: WHC031	REVIEWER: C Jensen	DATE: 6/18/93	PAGE 1 OF ___
COMMENTS: VOA			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK01	Acetone	24			ug/kg		240	all	U

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Total Petroleum Hydrocarbon Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for total petroleum hydrocarbon (TPH) analysis. The samples were analyzed by the DataChem laboratory using EPA method 418.1. The sample identification numbers, collection dates, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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. The relative percent difference between the sample and sample duplicate exceeded the control limit as noted in "minor deficiencies".

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 five samples were validated in this data set with a total of five determinations reported. Out of the five determination reported, all 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

Precision

The relative percent difference between the sample and sample duplicate exceeded the control limit. Therefore, all sample results were qualified as estimated (J for detecte, 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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHCI39	REVIEWER: CJ	DATE: 10/25/93	PAGE 1 OF 1
COMMENTS: TPH			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
TPH	J or UJ	all	TPH RPD 735 and results > 5x CRQL

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Form EPRS-A
Page 1 of 2
Part 1 of 1

Date _____
Agency Identification Number SF-1361-FK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

Telephone (509) 373-3225

Sampling Collection and Shipment
Sampling Site _____ Date of Collection October 30, 1992
Date Samples Received at Laboratory November 05, 1992

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	B07GP1 CLP 11610	B07GP4 CLP 11611	B07KP4 CLP 11612	B07KP5 CLP 11613	B07KP8 CLP 11614			* Limit of Detection
Total Petroleum Hydrocarbons 11/24/1992 µg/g 418.1 [1] 3550 [2]		90 J	ND* a	20 J	ND* a	ND* a			10

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

a Samples qualified as detection limit + U's for ND's because of duplicate analysis.

Analyst: David W. Thomas 12/25/92

Reviewer: Rosemary H. Hanks

Laboratory Supervisor: Norman K. Christensen Suzanne W. Bowe for NKC

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

TPH 6/25/93 ~~HERBICIDE~~ DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/25/93
LABORATORY: DataChem	CASE:	SDG: WHC I39
SAMPLES/MATRIX: B07GP1, B07GP4, B07KP4, B07KP5, B07KP8		

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 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	6/25/93			✓
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		—	✓	—

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? (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 1

Are the RPD values within specification? Yes (No) ~~N/A~~ 5/6/25/13

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.

COMMENTS (attach additional sheets as necessary):

1. A matrix spike and QC Sample were analyzed but not an MSD.

HOLDING TIME SUMMARY - FORM B-1

SDG: W1E139	REVIEWER: C Juan	DATE: 6/25/93	PAGE 1 OF 1
COMMENTS: TPH			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B076T7	TPH	10/30/92	11/23/92	11/24/92	24	1	none
B076P4	↓	11/2/92	↓	↓	21	↓	↓
B07KP4	↓	↓	↓	↓	↓	↓	↓
B07KP5	↓	↓	↓	↓	↓	↓	↓
B07KP8	↓	↓	↓	↓	↓	↓	↓

MEMORANDUM

TO: North Slope ERA Project QA Record June 10, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Semivolatile Organics Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for semivolatile organics analysis. The samples were analyzed by the DataChem laboratory using CLP protocols. The sample identifications, collection dates, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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.

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 five (5) samples were validated in this data set with a total of 320 determinations reported. Out of the 320 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

Tentatively identified compound (TIC) which were reported as aldol condensation products and squalene were qualified as unusable (R) in all samples since they are suspected laboratory contaminants. In addition, a TIC reported at a retention time of 29.32 in the laboratory blank was also identified in sample B07GP1 at a retention time of 29.34 minutes. The sample result was qualified as unusable (R).

MINOR DEFICIENCIES

Holding Times

The extraction holding time of seven days was exceeded by three days. Therefore, all sample results have been qualified as estimated (J for detects, UJ for non-detects).

Blanks

Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in the laboratory blank at 89 and 50 ug/kg, respectively. Sample results less than ten times the blank value were qualified as undetected (U) and the result was elevated to the detection limit.

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHC039	REVIEWER: DJF	DATE: 6/18/93	PAGE 1 OF ___
COMMENTS: Semivolatiles			
COMPOUND	**QUALIFIER**	**SAMPLES AFFECTED**	**REASON**
all	J or UJ	all	extraction holding time exceeded
Aldol condensation	R	all	laboratory contamination TICs.
TIC RT 29.34	R	B07GP1	found in blank
B-n-butyl phthalate	U	B07GP1, B07GP4	Blank contam.
↓	↓	B07KP4, B07KP5	↓
↓	↓	B07KP8	↓
Bis-(2-ethylhexyl) phthalate	U	B07GP1, B07KP8	↓
Siloxane TICs	R		

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	350	U	UJ
111-44-4	bis(2-Chloroethyl)Ether	350	U	UJ
95-57-8	2-Chlorophenol	350	U	UJ
541-73-1	1,3-Dichlorobenzene	350	U	UJ
106-46-7	1,4-Dichlorobenzene	350	U	UJ
95-50-1	1,2-Dichlorobenzene	350	U	UJ
95-48-7	2-Methylphenol	350	U	UJ
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U	UJ
106-44-5	4-Methylphenol	350	U	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	350	U	UJ
67-72-1	Hexachloroethane	350	U	UJ
98-95-3	Nitrobenzene	350	U	UJ
78-59-1	Isophorone	350	U	UJ
88-75-5	2-Nitrophenol	350	U	UJ
105-67-9	2,4-Dimethylphenol	350	U	UJ
111-91-1	bis(2-Chloroethoxy)Methane	350	U	UJ
120-83-2	2,4-Dichlorophenol	350	U	UJ
120-82-1	1,2,4-Trichlorobenzene	350	U	UJ
91-20-3	Naphthalene	350	U	UJ
106-47-8	4-Chloroaniline	350	U	UJ
87-68-3	Hexachlorobutadiene	350	U	UJ
59-50-7	4-Chloro-3-Methylphenol	350	U	UJ
91-57-6	2-Methylnaphthalene	350	U	UJ
77-47-4	Hexachlorocyclopentadiene	350	U	UJ
88-06-2	2,4,6-Trichlorophenol	350	U	UJ
95-95-4	2,4,5-Trichlorophenol	840	U	UJ
91-58-7	2-Chloronaphthalene	350	U	UJ
88-74-4	2-Nitroaniline	840	U	UJ
131-11-3	Dimethyl Phthalate	350	U	UJ
208-96-8	Acenaphthylene	350	U	UJ
606-20-2	2,6-Dinitrotoluene	350	U	UJ
99-09-2	3-Nitroaniline	840	U	UJ
83-32-9	Acenaphthene	350	U	UJ

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	37	J
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-Methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	350 ~~110~~	J
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	350 ~~120~~	J
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

Q: UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ UJ

(1) - Cannot be separated from Diphenylamine

12/18/92

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: B07GP1

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11610

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ5CLP610

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 15 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.29	240	~~ABJ~~
2.		ALDOL CONDENSATION PRODUCT	9.67	530	~~AJ~~
3.		ALDOL CONDENSATION PRODUCT	10.04	600	~~ABJ~~
4.		ALDOL CONDENSATION PRODUCT	10.27	200	~~AJ~~
5.		ALDOL CONDENSATION PRODUCT	11.04	380	~~ABJ~~
6.		ALDOL CONDENSATION PRODUCT	11.39	100	~~AJ~~
7.		ALDOL CONDENSATION PRODUCT	11.50	160	~~AJ~~
8.		ALDOL CONDENSATION PRODUCT	12.27	95	~~AJ~~
9.		UNKNOWN OXY HYDROCARBON	29.32	82	~~J~~
10.		UNKNOWN LONG-CHAIN HYDROCARB	30.17	77	~~J~~
11.		ALKANE @ C27	32.31	110	~~J~~
12.		UNKNOWN POLYCYCLIC HYDROCARB	33.87	120	~~J~~
13.		ALKANE @ C29	35.24	270	~~J~~
14.		UNKNOWN POLYCYCLIC HYDROCARB	35.81	110	~~J~~
15.		ALKANE @ C31	39.47	120	~~J~~

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	330	U	UJ
111-44-4	bis(2-Chloroethyl)Ether	330	U	UJ
95-57-8	2-Chlorophenol	330	U	UJ
541-73-1	1,3-Dichlorobenzene	330	U	UJ
106-46-7	1,4-Dichlorobenzene	330	U	UJ
95-50-1	1,2-Dichlorobenzene	330	U	UJ
95-48-7	2-Methylphenol	330	U	UJ
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	UJ
106-44-5	4-Methylphenol	330	U	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	330	U	UJ
67-72-1	Hexachloroethane	330	U	UJ
98-95-3	Nitrobenzene	330	U	UJ
78-59-1	Isophorone	330	U	UJ
88-75-5	2-Nitrophenol	330	U	UJ
105-67-9	2,4-Dimethylphenol	330	U	UJ
111-91-1	bis(2-Chloroethoxy)Methane	330	U	UJ
120-83-2	2,4-Dichlorophenol	330	U	UJ
120-82-1	1,2,4-Trichlorobenzene	330	U	UJ
91-20-3	Naphthalene	330	U	UJ
106-47-8	4-Chloroaniline	330	U	UJ
87-68-3	Hexachlorobutadiene	330	U	UJ
59-50-7	4-Chloro-3-Methylphenol	330	U	UJ
91-57-6	2-Methylnaphthalene	330	U	UJ
77-47-4	Hexachlorocyclopentadiene	330	U	UJ
88-06-2	2,4,6-Trichlorophenol	330	U	UJ
95-95-4	2,4,5-Trichlorophenol	810	U	UJ
91-58-7	2-Chloronaphthalene	330	U	UJ
88-74-4	2-Nitroaniline	810	U	UJ
131-11-3	Dimethyl Phthalate	330	U	UJ
208-96-8	Acenaphthylene	330	U	UJ
606-20-2	2,6-Dinitrotoluene	330	U	UJ
99-09-2	3-Nitroaniline	810	U	UJ
83-32-9	Acenaphthene	330	U	UJ

S 6/16/93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
51-28-5	2,4-Dinitrophenol	810	U	UJ
100-02-7	4-Nitrophenol	810	U	UJ
132-64-9	Dibenzofuran	330	U	UJ
121-14-2	2,4-Dinitrotoluene	330	U	UJ
84-66-2	Diethylphthalate	39	J	
7005-72-3	4-Chlorophenyl-phenylether	330	U	UJ
86-73-7	Fluorene	330	U	UJ
100-01-6	4-Nitroaniline	810	U	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	810	U	UJ
86-30-6	N-Nitrosodiphenylamine (1)	330	U	UJ
101-55-3	4-Bromophenyl-phenylether	330	U	UJ
118-74-1	Hexachlorobenzene	330	U	UJ
87-86-5	Pentachlorophenol	810	U	UJ
85-01-8	Phenanthrene	330	U	UJ
120-12-7	Anthracene	330	U	UJ
86-74-8	Carbazole	330	U	UJ
84-74-2	Di-n-Butylphthalate	350 ~~70~~	~~J~~	J
206-44-0	Fluoranthene	330	U	UJ
129-00-0	Pyrene	330	U	UJ
85-68-7	Butylbenzylphthalate	330	U	UJ
91-94-1	3,3'-Dichlorobenzidine	330	U	UJ
56-55-3	Benzo(a)Anthracene	330	U	UJ
218-01-9	Chrysene	330	U	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U	UJ
117-84-0	Di-n-Octyl Phthalate	330	U	UJ
205-99-2	Benzo(b)Fluoranthene	330	U	UJ
207-08-9	Benzo(k)Fluoranthene	330	U	UJ
50-32-8	Benzo(a)Pyrene	330	U	UJ
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	UJ
53-70-3	Dibenz(a,h)Anthracene	330	U	UJ
191-24-2	Benzo(g,h,i)Perylene	330	U	UJ

(1) - Cannot be separated from Diphenylamine

GJ 6/18/93

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07GP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11611

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ6CLP611

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 1 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 7

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN OXY HYDROCARBON	9.17	130	J	
2.		ALDOL CONDENSATION PRODUCT	9.40	260	~~ABJ~~	R
3.		ALDOL CONDENSATION PRODUCT	9.75	160	~~AJ~~	R
4.		ALDOL CONDENSATION PRODUCT	10.12	490	~~ABJ~~	R
5.		ALDOL CONDENSATION PRODUCT	10.35	140	~~AJ~~	R
6.		ALDOL CONDENSATION PRODUCT	11.12	250	~~ABJ~~	R
7.	111-02-4	SQUALENE	34.36	68	~~JN~~	R

6/25/93

6/18/93

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	350	U	UJ
111-44-4	bis(2-Chloroethyl)Ether	350	U	UJ
95-57-8	2-Chlorophenol	350	U	UJ
541-73-1	1,3-Dichlorobenzene	350	U	UJ
106-46-7	1,4-Dichlorobenzene	350	U	UJ
95-50-1	1,2-Dichlorobenzene	350	U	UJ
95-48-7	2-Methylphenol	350	U	UJ
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U	UJ
106-44-5	4-Methylphenol	350	U	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	350	U	UJ
67-72-1	Hexachloroethane	350	U	UJ
98-95-3	Nitrobenzene	350	U	UJ
78-59-1	Isophorone	350	U	UJ
88-75-5	2-Nitrophenol	350	U	UJ
105-67-9	2,4-Dimethylphenol	350	U	UJ
111-91-1	bis(2-Chloroethoxy)Methane	350	U	UJ
120-83-2	2,4-Dichlorophenol	350	U	UJ
120-82-1	1,2,4-Trichlorobenzene	350	U	UJ
91-20-3	Naphthalene	350	U	UJ
106-47-8	4-Chloroaniline	350	U	UJ
87-68-3	Hexachlorobutadiene	350	U	UJ
59-50-7	4-Chloro-3-Methylphenol	350	U	UJ
91-57-6	2-Methylnaphthalene	350	U	UJ
77-47-4	Hexachlorocyclopentadiene	350	U	UJ
88-06-2	2,4,6-Trichlorophenol	350	U	UJ
95-95-4	2,4,5-Trichlorophenol	850	U	UJ
91-58-7	2-Chloronaphthalene	350	U	UJ
88-74-4	2-Nitroaniline	850	U	UJ
131-11-3	Dimethyl Phthalate	350	U	UJ
208-96-8	Acenaphthylene	350	U	UJ
606-20-2	2,6-Dinitrotoluene	350	U	UJ
99-09-2	3-Nitroaniline	850	U	UJ
83-32-9	Acenaphthene	350	U	UJ

6/18/93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	①
51-28-5	2,4-Dinitrophenol	850	U	UJ
100-02-7	4-Nitrophenol	850	U	UJ
132-64-9	Dibenzofuran	350	U	UJ
121-14-2	2,4-Dinitrotoluene	350	U	UJ
84-66-2	Diethylphthalate	350	U	UJ
7005-72-3	4-Chlorophenyl-phenylether	350	U	UJ
86-73-7	Fluorene	350	U	UJ
100-01-6	4-Nitroaniline	850	U	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	850	U	UJ
86-30-6	N-Nitrosodiphenylamine (1)	350	U	UJ
101-55-3	4-Bromophenyl-phenylether	350	U	UJ
118-74-1	Hexachlorobenzene	350	U	UJ
87-86-5	Pentachlorophenol	850	U	UJ
85-01-8	Phenanthrene	350	U	UJ
120-12-7	Anthracene	350	U	UJ
86-74-8	Carbazole	350	U	UJ
84-74-2	Di-n-Butylphthalate	350 ~~280~~	~~BJ~~	J
206-44-0	Fluoranthene	350	U	UJ
129-00-0	Pyrene	350	U	UJ
85-68-7	Butylbenzylphthalate	350	U	UJ
91-94-1	3,3'-Dichlorobenzidine	350	U	UJ
56-55-3	Benzo(a)Anthracene	350	U	UJ
218-01-9	Chrysene	350	U	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	350	U	UJ
117-84-0	Di-n-Octyl Phthalate	350	U	UJ
205-99-2	Benzo(b)Fluoranthene	350	U	UJ
207-08-9	Benzo(k)Fluoranthene	350	U	UJ
50-32-8	Benzo(a)Pyrene	350	U	UJ
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U	UJ
53-70-3	Dibenz(a,h)Anthracene	350	U	UJ
191-24-2	Benzo(g,h,i)Perylene	350	U	UJ

(1) - Cannot be separated from Diphenylamine

Sjeu 8/93

9613424.1579

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KP4

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11612

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ9CLP612

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/13/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 11

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.45	340	~~ABJ~~
2.		ALDOL CONDENSATION PRODUCT	10.19	1900	~~ABJ~~
3.		ALDOL CONDENSATION PRODUCT	10.42	1100	~~ABJ~~
4.		ALDOL CONDENSATION PRODUCT	11.14	130	~~AJ~~
5.		ALDOL CONDENSATION PRODUCT	12.34	490	~~AJ~~
6.	72-55-9	4,4'-DDE	27.79	290	JN
7.	72-54-8	4,4'-DDD	28.79	76	JN
8.	50-29-3	4,4'-DDT	29.46	260	JN
9.	111-02-4	SQUALENE	34.34	74	~~JN~~
10.		ALKANE @ C29	35.24	180	J
11.		ALKANE @ C31	39.47	92	J

G R R R R R R

6/25/93
G 6/18/93

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	350	U	UJ
111-44-4	bis(2-Chloroethyl)Ether	350	U	UJ
95-57-8	2-Chlorophenol	350	U	UJ
541-73-1	1,3-Dichlorobenzene	350	U	UJ
106-46-7	1,4-Dichlorobenzene	350	U	UJ
95-50-1	1,2-Dichlorobenzene	350	U	UJ
95-48-7	2-Methylphenol	350	U	UJ
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U	UJ
106-44-5	4-Methylphenol	350	U	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	350	U	UJ
67-72-1	Hexachloroethane	350	U	UJ
98-95-3	Nitrobenzene	350	U	UJ
78-59-1	Isophorone	350	U	UJ
88-75-5	2-Nitrophenol	350	U	UJ
105-67-9	2,4-Dimethylphenol	350	U	UJ
111-91-1	bis(2-Chloroethoxy)Methane	350	U	UJ
120-83-2	2,4-Dichlorophenol	350	U	UJ
120-82-1	1,2,4-Trichlorobenzene	350	U	UJ
91-20-3	Naphthalene	350	U	UJ
106-47-8	4-Chloroaniline	350	U	UJ
87-68-3	Hexachlorobutadiene	350	U	UJ
59-50-7	4-Chloro-3-Methylphenol	350	U	UJ
91-57-6	2-Methylnaphthalene	350	U	UJ
77-47-4	Hexachlorocyclopentadiene	350	U	UJ
88-06-2	2,4,6-Trichlorophenol	350	U	UJ
95-95-4	2,4,5-Trichlorophenol	850	U	UJ
91-58-7	2-Chloronaphthalene	350	U	UJ
88-74-4	2-Nitroaniline	850	U	UJ
131-11-3	Dimethyl Phthalate	350	U	UJ
208-96-8	Acenaphthylene	350	U	UJ
606-20-2	2,6-Dinitrotoluene	350	U	UJ
99-09-2	3-Nitroaniline	850	U	UJ
83-32-9	Acenaphthene	350	U	UJ

6/18/93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
51-28-5	2,4-Dinitrophenol	850	U	UJ
100-02-7	4-Nitrophenol	850	U	UJ
132-64-9	Dibenzofuran	350	U	UJ
121-14-2	2,4-Dinitrotoluene	350	U	UJ
84-66-2	Diethylphthalate	350	U	UJ
7005-72-3	4-Chlorophenyl-phenylether	350	U	UJ
86-73-7	Fluorene	350	U	UJ
100-01-6	4-Nitroaniline	850	U	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	850	U	UJ
86-30-6	N-Nitrosodiphenylamine (1)	350	U	UJ
101-55-3	4-Bromophenyl-phenylether	350	U	UJ
118-74-1	Hexachlorobenzene	350	U	UJ
87-86-5	Pentachlorophenol	850	U	UJ
85-01-8	Phenanthrene	350	U	UJ
120-12-7	Anthracene	350	U	UJ
86-74-8	Carbazole	350	U	UJ
84-74-2	Di-n-Butylphthalate	350 ~~200~~	~~J~~	J
206-44-0	Fluoranthene	350	U	UJ
129-00-0	Pyrene	350	U	UJ
85-68-7	Butylbenzylphthalate	350	U	UJ
91-94-1	3,3'-Dichlorobenzidine	350	U	UJ
56-55-3	Benzo(a)Anthracene	350	U	UJ
218-01-9	Chrysene	350	U	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	350	U	UJ
117-84-0	Di-n-Octyl Phthalate	350	U	UJ
205-99-2	Benzo(b)Fluoranthene	350	U	UJ
207-08-9	Benzo(k)Fluoranthene	350	U	UJ
50-32-8	Benzo(a)Pyrene	350	U	UJ
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U	UJ
53-70-3	Dibenz(a,h)Anthracene	350	U	UJ
191-24-2	Benzo(g,h,i)Perylene	350	U	UJ

(1) - Cannot be separated from Diphenylamine

9613424.1582

1F

EPA SAMPLE NO.

B07KP5

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11613

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ7CLP613

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 7

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.40	240	~~ABJ~~
2.		ALDOL CONDENSATION PRODUCT	10.14	800	~~ABJ~~
3.		ALDOL CONDENSATION PRODUCT	10.35	150	~~AJ~~
4.		UNKNOWN OXY HYDROCARBON	26.37	120	~~J~~
5.	72-55-9	4,4'-DDE	27.79	250	JN
6.	50-29-3	4,4'-DDT	29.44	210	JN
7.		ALKANE @ C29	35.24	100	~~J~~

6/18/93

28

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
108-95-2	Phenol	350	U	UJ
111-44-4	bis(2-Chloroethyl)Ether	350	U	UJ
95-57-8	2-Chlorophenol	350	U	UJ
541-73-1	1,3-Dichlorobenzene	350	U	UJ
106-46-7	1,4-Dichlorobenzene	350	U	UJ
95-50-1	1,2-Dichlorobenzene	350	U	UJ
95-48-7	2-Methylphenol	350	U	UJ
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U	UJ
106-44-5	4-Methylphenol	350	U	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	350	U	UJ
67-72-1	Hexachloroethane	350	U	UJ
98-95-3	Nitrobenzene	350	U	UJ
78-59-1	Isophorone	350	U	UJ
88-75-5	2-Nitrophenol	350	U	UJ
105-67-9	2,4-Dimethylphenol	350	U	UJ
111-91-1	bis(2-Chloroethoxy)Methane	350	U	UJ
120-83-2	2,4-Dichlorophenol	350	U	UJ
120-82-1	1,2,4-Trichlorobenzene	350	U	UJ
91-20-3	Naphthalene	350	U	UJ
106-47-8	4-Chloroaniline	350	U	UJ
87-68-3	Hexachlorobutadiene	350	U	UJ
59-50-7	4-Chloro-3-Methylphenol	350	U	UJ
91-57-6	2-Methylnaphthalene	350	U	UJ
77-47-4	Hexachlorocyclopentadiene	350	U	UJ
88-06-2	2,4,6-Trichlorophenol	350	U	UJ
95-95-4	2,4,5-Trichlorophenol	840	U	UJ
91-58-7	2-Chloronaphthalene	350	U	UJ
88-74-4	2-Nitroaniline	840	U	UJ
131-11-3	Dimethyl Phthalate	350	U	UJ
208-96-8	Acenaphthylene	350	U	UJ
606-20-2	2,6-Dinitrotoluene	350	U	UJ
99-09-2	3-Nitroaniline	840	U	UJ
83-32-9	Acenaphthene	350	U	UJ

6/18/93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP8

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Q
51-28-5	2,4-Dinitrophenol	840	U	UJ
100-02-7	4-Nitrophenol	840	U	UJ
132-64-9	Dibenzofuran	350	U	UJ
121-14-2	2,4-Dinitrotoluene	350	U	UJ
84-66-2	Diethylphthalate	350	U	UJ
7005-72-3	4-Chlorophenyl-phenylether	350	U	UJ
86-73-7	Fluorene	350	U	UJ
100-01-6	4-Nitroaniline	840	U	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	840	U	UJ
86-30-6	N-Nitrosodiphenylamine (1)	350	U	UJ
101-55-3	4-Bromophenyl-phenylether	350	U	UJ
118-74-1	Hexachlorobenzene	350	U	UJ
87-86-5	Pentachlorophenol	840	U	UJ
85-01-8	Phenanthrene	350	U	UJ
120-12-7	Anthracene	350	U	UJ
86-74-8	Carbazole	350	U	UJ
84-74-2	Di-n-Butylphthalate	350 ~~63~~	~~J~~	U
206-44-0	Fluoranthene	350	U	UJ
129-00-0	Pyrene	350	U	UJ
85-68-7	Butylbenzylphthalate	350	U	UJ
91-94-1	3,3'-Dichlorobenzidine	350	U	UJ
56-55-3	Benzo(a)Anthracene	350	U	UJ
218-01-9	Chrysene	350	U	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	350 ~~80~~	~~J~~	U
117-84-0	Di-n-Octyl Phthalate	350	U	UJ
205-99-2	Benzo(b)Fluoranthene	350	U	UJ
207-08-9	Benzo(k)Fluoranthene	350	U	UJ
50-32-8	Benzo(a)Pyrene	350	U	UJ
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U	UJ
53-70-3	Dibenz(a,h)Anthracene	350	U	UJ
191-24-2	Benzo(g,h,i)Perylene	350	U	UJ

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

B07KP8

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: DATACHEM LABS Contract: 3534

Lab Code: DATAC Case No.: WHC39 SAS No.: _____ SDG No.: WHC039

Matrix: (soil/water) SOIL Lab Sample ID: CLP11614

Sample wt/vol: 30.0 (g/mL) G Lab File ID: GJ8CLP614

Level: (low/med) LOW Date Received: 11/05/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1

Number TICs found: 8

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATION PRODUCT	9.39	240	~~ABJ~~ R
2.		ALDOL CONDENSATION PRODUCT	10.12	1100	~~ABJ~~ R
3.		ALDOL CONDENSATION PRODUCT	10.34	360	~~AJ~~ R
4.	72-55-9	4,4'-DDE	27.79	140	JN
5.		ALKANE @ C27	32.31	90	~~J~~ J
6.	111-02-4	SQUALENE	34.34	91	~~JN~~
7.		ALKANE @ C29	35.24	240	~~J~~ J
8.		ALKANE @ C31	39.49	160	~~J~~ J

Q

12/25/93

Sulidag

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

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

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/18/93
LABORATORY: Data Chem	CASE: WHC39	SDG: WHC039
SAMPLES/MATRIX: B07GP1, B07GP4, B07KP4, B07KP5, B07KP8		

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		✓	—	—

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		—	✓	—

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

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 See Comment 1

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? 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

See comment 2

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

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

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. ~~There were no target compounds detected in~~ the blank, however, there were TICs.

2. The retention times on the 12 hour standard were incorrectly transcribed. The areas are correctly reported. All internal standards were compared to the correct VSTD50 with no problems found.

3. Aldol condensation products were reported in the samples and were qualified as R

1. There were target compounds and TICs detected in the blank (SBLK02)

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC039	REVIEWER: C Jensen	DATE: 6/18/93	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
B076P1	SVOA	10/30/92	11/10/92	12/11/92	11	31	J or UJ
B076P4	↓	↓	↓	↓	↓	↓	
B07KP4							
B07KP5							
B07KP8							

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: WHC039	REVIEWER: C Jensen			DATE: 6/18/93				PAGE ___ OF ___	
COMMENTS: Semivolatiles									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK02	Di-n-butylphthalate	89	J		ug/kg		890	B07GP1	U
	↓	↓	↓		↓		↓	B07GP4	U
								B07KP4	↓
								B07KP5	
↓	↓	↓	↓		↓		↓	B07KP8	↓
SBLK02	Bis(2-ethylhexyl)phthalate	50	J		ug/kg		500	B07GP1	U
↓	↓		↓		↓		↓	B07KP8	U

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Pesticide/PCB Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five (5) soil samples submitted for organochlorine pesticide/PCB analysis. The samples were analyzed by the DataChem laboratory using CLP protocols. The sample identification numbers, collection dates and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	10/30/92	SOIL
B07KP4	10/30/92	SOIL
B07KP5	10/30/92	SOIL
B07KP8	10/30/92	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 with the exception of the relative percent differences (RPDs) for PEMIX-H1 and IND A as noted in "minor deficiencies".

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 five samples were validated in this data set with a total of 140 determinations reported. Out of the 140 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

Methoxychlor was detected in the laboratory blank at 1.2 ug/kg. Therefore, all methoxychlor results have been qualified as undetected (U) and corrected to the reporting limit of 17 ug/kg.

Holding Times

The analysis holding time of 40 days was exceeded by two days for all samples. Therefore, all sample results were qualified as estimated (J for detects, UJ for non-detects).

Precision

The initial calibration RPDs for PEMIX-H1 were >25%, however, the samples were previously qualified due to holding time exceedances and therefore no further qualification of the samples was necessary.

The initial calibration RPDs for IND A were >25% for endosulfan I, dieldrin, endrin, 4,4'DDD, 4,4'-DDT, methoxychlor and decafluorobiphenyl. The samples were previously qualified due to holding time exceedances and therefore no further qualification of the samples was necessary.

The percent difference (%D) exceeded 25% for several identified compounds and is qualified with a "P" on the results form. Since the samples were previously qualified due to holding time exceedances, no further qualification of the samples was necessary.

Additional Data Qualifiers

The laboratory reported a "Y" qualifier which was used to flag results of single component target pesticides in samples found to contain Arochlor 1254. The qualifier indicates that a dilution of the sample was not analyzed because the analysis would occur outside the analytical hold time.

Accuracy

The surrogate percent recovery (%R) was exceeded for samples B07KP4 and B07KP8. The samples were previously qualified due to holding time exceedances and therefore no further qualification of the samples was necessary.

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHC039	REVIEWER: CJ.	DATE: 6/17/93	PAGE 1 OF ___
COMMENTS: Pest / PCB			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J or UJ	all	analysis holding time exceeded
Methoxychlor	U	all	Blank Contam.

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613424.1605

1D

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B07GP1

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11610

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 5 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	~~U~~
319-85-7	beta-BHC	1.8	~~U~~
319-86-8	delta-BHC	1.8	~~U~~
58-89-9	gamma-BHC(Lindane)	1.8	~~U~~
76-44-8	Heptachlor	1.8	~~U~~
309-00-2	Aldrin	1.8	~~U~~
1024-57-3	Heptachlor epoxide	1.8	~~U~~
959-98-8	Endosulfan I	1.8	~~U~~
60-57-1	Dieldrin	2.3	JPX
72-55-9	4,4'-DDE	11.	~~X~~
72-20-8	Endrin	10.	~~PX~~
33213-65-9	Endosulfan II	0.84	JPX
72-54-8	4,4'-DDD	1.4	JPX
1031-07-8	Endosulfan sulfate	3.5	~~U~~
50-29-3	4,4'-DDT	3.5	~~U~~
72-43-5	Methoxychlor	10. ~~0.71~~	~~JPB~~
53494-70-5	Endrin ketone	3.5	~~U~~
7421-36-3	Endrin aldehyde	3.5	~~U~~
5103-71-9	alpha-Chlordane	4.9	~~PX~~
5103-74-2	gamma-Chlordane	1.8	~~U~~
8001-35-2	Toxaphene	180.	~~U~~
12674-11-2	Aroclor-1016	35.	~~U~~
11104-28-2	Aroclor-1221	71.	~~U~~
11141-16-5	Aroclor-1232	35.	~~U~~
53469-21-9	Aroclor-1242	35.	~~U~~
12672-29-6	Aroclor-1248	35.	~~U~~
11097-69-1	Aroclor-1254	210.	~~P~~
11096-82-5	Aroclor-1260	35.	U

SG 6/17/93

9613424.1606

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07GP4

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11611

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 1 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.7	~~U~~
319-85-7	beta-BHC	1.7	~~U~~
319-86-8	delta-BHC	1.7	~~U~~
58-89-9	gamma-BHC(Lindane)	1.7	~~U~~
76-44-8	Heptachlor	1.7	~~U~~
309-00-2	Aldrin	1.7	~~U~~
1024-57-3	Heptachlor epoxide	1.7	~~U~~
959-98-8	Endosulfan I	1.7	~~U~~
60-57-1	Dieldrin	0.061	JP
72-55-9	4,4'-DDE	3.3	~~U~~
72-20-8	Endrin	3.3	~~U~~
33213-65-9	Endosulfan II	3.3	~~U~~
72-54-8	4,4'-DDD	3.3	~~U~~
1031-07-8	Endosulfan sulfate	3.3	~~U~~
50-29-3	4,4'-DDT	3.3	~~U~~
72-43-5	Methoxychlor	17, ~~0.55~~	~~JPB~~
53494-70-5	Endrin ketone	3.3	~~U~~
7421-36-3	Endrin aldehyde	3.3	~~U~~
5103-71-9	alpha-Chlordane	1.7	~~U~~
5103-74-2	gamma-Chlordane	1.7	~~U~~
8001-35-2	Toxaphene	170.	~~U~~
12674-11-2	Aroclor-1016	33.	~~U~~
11104-28-2	Aroclor-1221	68.	~~U~~
11141-16-5	Aroclor-1232	33.	~~U~~
53469-21-9	Aroclor-1242	33.	~~U~~
12672-29-6	Aroclor-1248	33.	~~U~~
11097-69-1	Aroclor-1254	33.	~~U~~
11096-82-5	Aroclor-1260	33.	~~U~~

9613424.1607

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP4

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11612

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 6 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	~~U~~
319-85-7	beta-BHC	1.8	~~U~~
319-86-8	delta-BHC	1.8	~~U~~
58-89-9	gamma-BHC(Lindane)	1.8	~~U~~
76-44-8	Heptachlor	1.8	~~U~~
309-00-2	Aldrin	1.8	~~U~~
1024-57-3	Heptachlor epoxide	1.8	~~U~~
959-98-8	Endosulfan I	1.8	~~U~~
60-57-1	Dieldrin	4.0	~~P~~
72-55-9	4,4'-DDE	150.	~~PY~~
72-20-8	Endrin	3.5	~~U~~
33213-65-9	Endosulfan II	3.5	~~U~~
72-54-8	4,4'-DDD	1.4	JP
1031-07-8	Endosulfan sulfate	3.5	~~U~~
50-29-3	4,4'-DDT	210.	~~PY~~
72-43-5	Methoxychlor	~~18. 2.4~~	~~JPB~~
53494-70-5	Endrin ketone	3.5	~~U~~
7421-36-3	Endrin aldehyde	3.5	~~U~~
5103-71-9	alpha-Chlordane	1.8	~~U~~
5103-74-2	gamma-Chlordane	1.8	~~U~~
8001-35-2	Toxaphene	180.	~~U~~
12674-11-2	Aroclor-1016	35.	~~U~~
11104-28-2	Aroclor-1221	71.	~~U~~
11141-16-5	Aroclor-1232	35.	~~U~~
53469-21-9	Aroclor-1242	35.	~~U~~
12672-29-6	Aroclor-1248	35.	~~U~~
11097-69-1	Aroclor-1254	35.	~~U~~
11096-82-5	Aroclor-1260	35.	~~U~~

6/11/93

9613424.1608

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP5

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11613

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 6 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg)UG/KG	Q
319-84-6	alpha-BHC	1.8	~~U~~
319-85-7	beta-BHC	1.8	~~U~~
319-86-8	delta-BHC	1.8	~~U~~
58-89-9	gamma-BHC(Lindane)	1.8	~~U~~
76-44-8	Heptachlor	1.8	~~U~~
309-00-2	Aldrin	1.8	~~U~~
1024-57-3	Heptachlor epoxide	1.8	~~U~~
959-98-8	Endosulfan I	1.8	~~U~~
60-57-1	Dieldrin	7.5	—
72-55-9	4,4'-DDE	170.	~~PY~~
72-20-8	Endrin	3.5	~~U~~
33213-65-9	Endosulfan II	3.5	~~U~~
72-54-8	4,4'-DDD	2.2	JP
1031-07-8	Endosulfan sulfate	3.5	~~U~~
50-29-3	4,4'-DDT	260.	~~PY~~
72-43-5	Methoxychlor	~~18.~~ 17	~~JPD~~
53494-70-5	Endrin ketone	3.5	~~U~~
7421-36-3	Endrin aldehyde	3.5	~~U~~
5103-71-9	alpha-Chlordane	1.8	~~U~~
5103-74-2	gamma-Chlordane	1.8	~~U~~
8001-35-2	Toxaphene	180.	~~U~~
12674-11-2	Aroclor-1016	35.	~~U~~
11104-28-2	Aroclor-1221	71.	~~U~~
11141-16-5	Aroclor-1232	35.	~~U~~
53469-21-9	Aroclor-1242	35.	~~U~~
12672-29-6	Aroclor-1248	35.	~~U~~
11097-69-1	Aroclor-1254	35.	~~U~~
11096-82-5	Aroclor-1260	35.	~~U~~

9613424.1609

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

B07KP8

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.WHC39 SAS No.: SDG No.:WHC039

Matrix: (soil/water)SOIL Lab Sample ID: CLP-11614

Sample wt/vol: 30.0 (g/ml)G Lab File ID:

% Moisture: 5 decanted: (Y/N) N Date Received: 11/05/92

Extraction: (SepF/Cont/Sonc)SONC Date Extracted:11/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N)Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	~~U~~
319-85-7	beta-BHC	1.8	~~U~~
319-86-8	delta-BHC	1.8	~~U~~
58-89-9	gamma-BHC(Lindane)	1.2	JP
76-44-8	Heptachlor	1.8	~~U~~
309-00-2	Aldrin	1.8	~~U~~
1024-57-3	Heptachlor epoxide	1.8	~~U~~
959-98-8	Endosulfan I	1.8	~~U~~
60-57-1	Dieldrin	10.	~~P~~
72-55-9	4,4'-DDE	100.	~~PY~~
72-20-8	Endrin	0.69	JP
33213-65-9	Endosulfan II	3.5	~~U~~
72-54-8	4,4'-DDD	2.1	JP
1031-07-8	Endosulfan sulfate	3.5	~~U~~
50-29-3	4,4'-DDT	96.	~~PY~~
72-43-5	Methoxychlor	~~18.~~ 1.8	~~JPD~~
53494-70-5	Endrin ketone	3.5	~~U~~
7421-36-3	Endrin aldehyde	3.5	~~U~~
5103-71-9	alpha-Chlordane	1.8	~~U~~
5103-74-2	gamma-Chlordane	1.8	~~U~~
8001-35-2	Toxaphene	180.	~~U~~
12674-11-2	Aroclor-1016	35.	~~U~~
11104-28-2	Aroclor-1221	71.	~~U~~
11141-16-5	Aroclor-1232	35.	~~U~~
53469-21-9	Aroclor-1242	35.	~~U~~
12672-29-6	Aroclor-1248	35.	~~U~~
11097-69-1	Aroclor-1254	35.	~~U~~
11096-82-5	Aroclor-1260	35.	~~U~~

6/17/93

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: North Slope ERA	REVIEWER: C Jusa	DATE: 6/17/93
LABORATORY: Data Chem	CASE: WHC-39	SDG: WHC039
SAMPLES/MATRIX: B076P1, B076P4, B07KP4, B07KP5, B07KP8		

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		✓		

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		✓	—	—

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 See comment 1

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).

See comment 2

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).

20% 9611793

Are the RSDs for the calibration factors < ~~10.0%~~ (≤ 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

See comment 3

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

See comment 4

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

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 5

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. Samples were analyzed 2 days outside of the holding time of 40 days. All results for all samples will be qualified as estimated (J or UJ)

2. PEM1X-H1 RPDs were >25%, therefore samples would be qualified as estimated (J or UJ) However, the samples were previously qualified as J or UJ because of the holding time. So no further qualification is necessary.

3. The RPDs exceed the 25% limit for Lvd A

endosulfan I	30%
dieldrin	35%
endrin	40%
4,4'DDD	40%
44'DDT	45%
Methoxychlor	45%
Decachlorobiphenyl	35%

Data has been previously qualified as estimated due to 30/37 analytes holding times exceedance no further qualification will be made.

4. Surrogates out for samples B07KP4 and B07KP8. Samples were previously qualified as J or UJ therefore no further qualification is necessary

5. The %D are out for several compounds which result in an estimated (J or UJ) qualification, however, the samples have been previously qualified as estimated due to holding times. Therefore, no further qualification will be made.

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: W1K031	REVIEWER: C Jensen			DATE: 6/17/93				PAGE 1 OF 1	
COMMENTS: Pest/PCB									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
~~PB~~									
PBLK1S	methoxychlor	1.2	J		ug/kg	6		all	U

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC039	REVIEWER: C Jensen	DATE: 6/17/93	PAGE___OF___
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07GP1	Pest/PCB	10/30/92	11/10/92	12/22/92	11	42	J or UJ
B07GP4	↓	11/2/92	↓	↓	8	↓	↓
B07KP4	↓	↓	↓	↓	↓	↓	↓
B07KP5	↓	↓	↓	↓	↓	↓	↓
B07KP8	↓	↓	↓	↓	↓	↓	↓

9613424.1622

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name:DATACHEM LABORATORIES Contract:N/A

Lab Code:DATAC Case No.:WHC39 SAS No.: SDG No.:WHC039

GC Column(1):DB-608 ID: 0.53 (mm) GC Column(2):DB-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	B07GP1	93	79	100	93			0
02	B07GP1MS	93	64	107	79			0
03	B07GP1MSD	86	71	107	114			0
04	B07GP4	89	60	97	82			0
05	B07KP4	85	57*	92	78			1
06	B07KP5	78	70	85	113			0
07	B07KP8	79	57*	86	69			1
08	PBLK2S	90	75	98	105			0
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

FORM II PEST-2 3/90

421

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organophosphorus Pesticide Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for organophosphorus pesticide analysis. The samples were analyzed by the DataChem laboratory using EPA method 8141. The sample identification numbers, collection dates, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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.

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 five samples were validated in this data set with a total of 120 determinations reported. Out of the 120 determinations reported, all were deemed valid which results in a completeness of 90 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified during the validation.

MINOR DEFICIENCIES

Holding Times

The extraction holding time of 7 days was exceeded for all samples. Therefore, all results were qualified as estimated (J for detect, UJ for non-detects).

Calibration

The correlation coefficient for phorate, methyl parathion and triphenyl phosphate were <0.995. Since all sample results were previously qualified due to holding time exceedance, no further qualification of the data was necessary.

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHC-E39	REVIEWER: G	DATE: 6/24/93	PAGE 1 OF 1
COMMENTS: OP Pests			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J or UJ	all	Extraction holding time exceeded.

ATTACHMENT 3

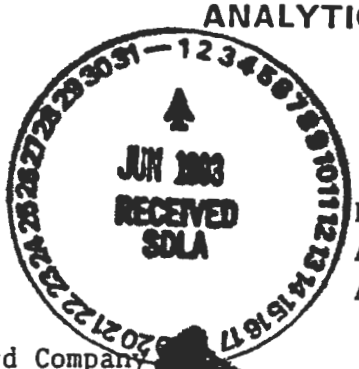
AS QUALIFIED DATA SUMMARY

9613424.1630

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 5
Part 1 of 4



Date _____
Agency Identification Number SF-1361-HK
Account No. 35340

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Azinphos Methyl ug/kg GC/FPD	Bolstar ug/kg GC/FPD	Chlorpyrifos ug/kg GC/FPD	Coumaphos ug/kg GC/FPD	Demeton-S ug/kg GC/FPD	Diazinon ug/kg GC/FPD	Dichlorvos ug/kg GC/FPD	Disulfoton ug/kg GC/FPD	
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	82	
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	83	
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	78	
B07KP4	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

* sample extraction holding time was exceeded. Sample results: detection limit + UJ

SJ 11/24/93

Vicki Hoe Lin Tsai
Analyst: Vicki Hoe-Lin Tsai

Reviewer: Guangyue Liu

Laboratory Supervisor: Jose C. Danino

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ethoprop ug/kg GC/FPD	Pensulfothion ug/kg GC/FPD	Fenthion ug/kg GC/FPD	Merphos ug/kg GC/FPD	Mevinphos ug/kg GC/FPD	Naled ug/kg GC/FPD	Parathion methyl ug/kg GC/FPD	Phorate ug/kg GC/FPD	
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	72	76	
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1 *	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4 *	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	76	81	
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	77	80	
B07KP4 *	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5 *	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8 *	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

* Sample extraction holding time was exceeded. Sample results: detection limit + UJ.
SJ 12/4/93

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Ronnel ug/kg GC/FPD	Stirophos ug/kg GC/FPD	Dimethoate ug/kg GC/FPD	EPN ug/kg GC/FPD	Malathion ug/kg GC/FPD	Monocrotophos ug/kg GC/FPD	Parathion ug/kg GC/FPD	SULFOTEP ug/kg GC/FPD	
QC-90973-1	QC-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
BL-90973-1	BL-90973-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1 ✱	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4 ✱	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MS	CLP 11611MS	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4MSD	CLP 11611MSD	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP4 ✱	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5 ✱	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8 ✱	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
* Limit of Detection			6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

* Sample extraction holding time was exceeded. Sample results: detection limit + UJ.
cj 6/24/93

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number SF-1361-HK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8141

Date(s) of Analysis November 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	TEPP ug/kg GC/FPD								
QC-90973-1	QC-90973-1	SOIL	ND*								
BL-90973-1	BL-90973-1	SOIL	ND*								
B07GP1 ✱	CLP 11610	SOIL	ND*								
B07GP4 ✱	CLP 11611	SOIL	ND*								
B07GP4MS	CLP 11611MS	SOIL	ND*								
B07GP4MSD	CLP 11611MSD	SOIL	ND*								
B07KP4 ✱	CLP 11612	SOIL	ND*								
B07KP5 ✱	CLP 11613	SOIL	ND*								
B07KP8 ✱	CLP 11614	SOIL	ND*								
* Limit of Detection			6.7								

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

* Sample extraction holding time was exceeded. Sample results: detection limit + UJ.

cs 11/24/92

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

HERBICIDE DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope ERA	REVIEWER: cj	DATE: 6/24/93
LABORATORY: DataChem	CASE:	SDG: WHCI39
SAMPLES/MATRIX: B076P1, B076P4, B07KP4, B07KP5, B07KP8		

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 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		✓		

2. HOLDING TIMES

	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) see comment 1

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) see comment 2
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? 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 See comment

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

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 4

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. Sample Calibration was an 8 pt calib.
r^2 for phorate was .9878
r^2 for methyl parathion was .9806
r^2 for triphenyl phosphate was .988
Samples were previously qualified due to holding time exceedance, therefore no further qualification of the data is necessary.
2 Samples were analyzed right after ICAL so no CCAL was associated with these samples.

3. Enough information was not provided to recalculate the MS/MSD recoveries from the raw data. However, the QC data sheet reported recoveries within 23-139% limits in procedure.

4. There were no detected compounds.

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC137	REVIEWER: C. Jansen			DATE: 6/24/93		PAGE 1 OF 1	
COMMENTS:	Organophosphorus Pesticides						
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B076P1	OP Pest	10/30/92	11/11/92	11/~~18~~38/92	12	30	J or UJ
B076P4	↓	11/2/92	↓	↓	9	28	J or UJ
B07KP4	↓	↓	↓	↓	↓	↓	↓
B07KP5	↓	↓	↓	↓	↓	↓	↓
B07KP6	↓	↓	↓	↓	↓	↓	↓

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Inorganic Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five (5) soil sample submitted for inorganics analysis. The samples weere analyzed by the DataChem laboratory using CLP protocols. The sample identification, collection date and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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 with the exception of the percent difference (%D) for sodium for the serial dilution and the relative standard deviation (%RSD) for furnace duplicate injections for thallium as noted in "minor differences".

Accuracy. Goals for accuracy were met with the exception of antimony and selenium spike recoveries and selenium and lead GFAA analytical spike recoveries as noted in "minor deficiencies".

Sample Result Verification. All sample results were supported in the raw data with the exception of lead for sample B07KP4, in which the rerun analytical result could not be verified because the raw data was not submitted.

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

Completeness. The data package was complete for all requested analyses. A total of five (5) samples were validated in this data set with a total of 115 determinations reported. Out of the 115 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

Blanks

Beryllium and sodium were detected in the laboratory blank at 3.8 and 67.4 ug/L respectively. Therefore, the beryllium detected in samples B07GP1, B07KP6, B07KP5 and B07KP8 were qualified as undetected (U). The sodium detected in sample B07GP4 was qualified as undetected (U).

Matrix Spike

Antimony and selenium spike results for sample B07GP1 were below the QC limits of 75% to 125% with results qualified as estimated (J for detects, UJ for nondetects).

GFAA Analytical Spike

The graphite furnace (GFAA) analytical spike recoveries were below the control limits for selenium and lead. Therefore, the sample results were qualified as estimated (J for detects UJ, for non-detects) for the following samples:

Selenium: B07GP1, B07KP4, B07KP5, B07KP8
Lead: B07GP4

Precision

The percent difference (%D) was out of limits for the serial dilution for sodium. Therefore, all samples were qualified as estimated (J for detects, UJ for non-detects).

The %RSD for furnace AA duplicate injections for thallium was outside control limits for sample B07GP1. 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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHCI39	REVIEWER: CJ	DATE: 6/14/93	PAGE 1 OF 1
COMMENTS: Inorganics			
COMPOUND	**QUALIFIER**	**SAMPLES AFFECTED**	**REASON**
Beryllium	U	B07GP1, B07KP4	Blank Contam
↓	↓	B07KP5, B07KP8	↓
Sodium	U	B07GP4	Blank Contam.
Antimony	J or UJ	all	SSR out
Selenium	J or UJ	all	↓
Sodium	J or UJ	all	Serial dilution out
Selenium	J or UJ	B07GP1, B07KP4	GFAA anal spk
↓	↓	B07KP5, B07KP8	out ↓
Lead	J or UJ	B07GP4	GFAA anal spk out
~~6/17/93~~ Sodium	J or UJ	all	Serial
Thallium	J or UJ	B07GP1	GFAA %RSD out

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11610
B076P1

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11610

Level (low/med): LOW Date Received: 11/05/92

% Solids: 94.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	11100			P	
7440-36-0	Antimony	12.7	~~U~~	N	P	UJ
7440-38-2	Arsenic	11.1			F	
7440-39-3	Barium	120			P	
7440-41-7	Beryllium	0.55	~~B~~		P	U
7440-43-9	Cadmium	1.1	U		P	
7440-70-2	Calcium	14600			P	
7440-47-3	Chromium	17.9			P	
7440-48-4	Cobalt	8.8	B		P	
7440-50-8	Copper	53.5			P	
7439-89-6	Iron	20800			P	
7439-92-1	Lead	20.1		S*	F	
7439-95-4	Magnesium	7250			P	
7439-96-5	Manganese	424			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	18.1			P	
7440-09-7	Potassium	2230			P	
7782-49-2	Selenium	0.21	~~U~~	NW	F	UJ
7440-22-4	Silver	0.84	U		P	
7440-23-5	Sodium	271	~~B~~	E	P	J
7440-28-0	Thallium	0.60	~~B~~		F	~~J~~ BJ
7440-62-2	Vanadium	36.0			P	
7440-66-6	Zinc	72.2			P	
	Cyanide				NR	

5 6/17/98

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11611
B07GP4

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11611

Level (low/med): LOW Date Received: 11/05/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	138			P	
7440-36-0	Antimony	12.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	0.40	U		F	
7440-39-3	Barium	1.5	B		P	
7440-41-7	Beryllium	0.40	U		P	
7440-43-9	Cadmium	1.0	U		P	
7440-70-2	Calcium	26.9	B		P	
7440-47-3	Chromium	1.8	U		P	
7440-48-4	Cobalt	2.2	U		P	
7440-50-8	Copper	1.4	U		P	
7439-89-6	Iron	185			P	
7439-92-1	Lead	0.32	~~B~~	*	F	BJ
7439-95-4	Magnesium	12.8	U		P	
7439-96-5	Manganese	4.3			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	5.8	U		P	
7440-09-7	Potassium	206	U		P	
7782-49-2	Selenium	0.20	~~U~~	N	F	UJ
7440-22-4	Silver	0.80	U		P	
7440-23-5	Sodium	7.5	~~B~~	E	P	UJ
7440-28-0	Thallium	0.20	~~U~~		F	UJ
7440-62-2	Vanadium	2.0	U		P	
7440-66-6	Zinc	1.8	U		P	
	Cyanide				NR	

S 6/17/93

Color Before: WHITE Clarity Before: Texture: CORASE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11612
B07KP4

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11612

Level (low/med): LOW Date Received: 11/05/92

% Solids: 93.9

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	13300			P	
7440-36-0	Antimony	12.8	U	N	P	UJ
7440-38-2	Arsenic	7.3			F	
7440-39-3	Barium	163			P	
7440-41-7	Beryllium	0.61	B		P	U
7440-43-9	Cadmium	1.1	U		P	
7440-70-2	Calcium	15000			P	
7440-47-3	Chromium	20.2			P	
7440-48-4	Cobalt	10.5	B		P	
7440-50-8	Copper	22.3			P	
7439-89-6	Iron	24400			P	
7439-92-1	Lead	190		*	F	
7439-95-4	Magnesium	7580			P	
7439-96-5	Manganese	524			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	20.8			P	
7440-09-7	Potassium	2170			P	
7782-49-2	Selenium	0.21	U	NW	F	UJ
7440-22-4	Silver	0.85	U		P	
7440-23-5	Sodium	367	B	E	P	J
7440-28-0	Thallium	0.24	B		F	
7440-62-2	Vanadium	45.5			P	
7440-66-6	Zinc	117			P	
	Cyanide				NR	

G 6117/93

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

5

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11613
607KP5

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11613

Level (low/med): LOW Date Received: 11/05/92

% Solids: 94.1

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	13900			P	
7440-36-0	Antimony	13.9		N	P	J
7440-38-2	Arsenic	6.3			F	
7440-39-3	Barium	187			P	
7440-41-7	Beryllium	0.60	~~B~~		P	U
7440-43-9	Cadmium	1.9			P	
7440-70-2	Calcium	15100			P	
7440-47-3	Chromium	22.4			P	
7440-48-4	Cobalt	11.4			P	
7440-50-8	Copper	24.2			P	
7439-89-6	Iron	30300			P	
7439-92-1	Lead	26.5		S*	F	
7439-95-4	Magnesium	7810			P	
7439-96-5	Manganese	533			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	19.6			P	
7440-09-7	Potassium	2220			P	
7782-49-2	Selenium	0.21	~~U~~	NW	F	UJ
7440-22-4	Silver	0.85	U		P	
7440-23-5	Sodium	373	~~B~~	E	P	J
7440-28-0	Thallium	0.21	U		F	
7440-62-2	Vanadium	47.3			P	
7440-66-6	Zinc	161			P	
	Cyanide				NR	

5 6/17/93

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

ENVIROFORMS/INORGANIC CLP

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

M11614
B07KP8

Lab Name: DataChem Laboratories Contract: WHC

Lab Code: DATAC Case No.: WHC39 SAS No.: SDG No.: WHCI39

Matrix (soil/water): SOIL Lab Sample ID: CLP11614

Level (low/med): LOW Date Received: 11/05/92

% Solids: 95.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	18100			P	
7440-36-0	Antimony	12.6	U	N	P	UJ
7440-38-2	Arsenic	9.3			F	
7440-39-3	Barium	148			P	
7440-41-7	Beryllium	0.76	B		P	U
7440-43-9	Cadmium	1.1	U		P	
7440-70-2	Calcium	17300			P	
7440-47-3	Chromium	24.1			P	
7440-48-4	Cobalt	11.5			P	
7440-50-8	Copper	29.2			P	
7439-89-6	Iron	27300			P	
7439-92-1	Lead	22.7		S*	F	
7439-95-4	Magnesium	8960			P	
7439-96-5	Manganese	497			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	20.3			P	
7440-09-7	Potassium	2830			P	
7782-49-2	Selenium	0.21	U	NW	F	UJ
7440-22-4	Silver	0.84	U		P	
7440-23-5	Sodium	578	B	E	P	J
7440-28-0	Thallium	0.21	U		F	
7440-62-2	Vanadium	46.1			P	
7440-66-6	Zinc	108			P	
	Cyanide				NR	

S 6/17/93

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

7

FORM I - IN

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: North Slope ~~ERA~~	REVIEWER: g	DATE: 6/14/93
LABORATORY: Data Chem	CASE: WHC39	SDG: WHCI39
SAMPLES/MATRIX: M11610, M11611, M11612, M11613		
M11614		

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	✓		

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

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 See comment 1

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

See comment 2

If no, were MSA analyses performed when required?	Yes	(No)	N/A
Are MSA correlation coefficients $\geq$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 $\geq$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):

1. The %RSD for Thallium for sample B07GP4 was 46.59% and the sample was not rerun. Sample will be qualified as UJ.

2. MSA analysis was done on B07GP1, B07K25 and B07KP8, which were not necessary. The results will be used, with no qualification of the data.

HOLDING TIME SUMMARY - FORM B-1

SDG: W1HCT3	REVIEWER: C Jensen	DATE: 6/14/93	PAGE 1 OF 1
COMMENTS: Inorganics			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
All	ICP, F	10/30/92	12/7/92	12/9/92	8, 11	2	none
All	CV	10/30/92	11/10/92	11/19/92	19, 22	1	none

ACCURACY DATA SUMMARY - FORM B-4

SDG: WHCI39	REVIEWER: C Jensen	DATE: 6/16/93	PAGE 1 OF 1	
COMMENTS: Inorganics				
SAMPLE ID	**COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER REQUIRED**
MI16105/B07GP1	Antimony	30	all	>IDL = J <IDL = UJ
↓	Selenium	55.5	all	J or UJ
GFAA Analspk %R				
~~Selenium~~ B07GP1	Selenium	72	B07GP1	J or UJ
B07KP4	↓	61	B07KP4	↓
B07KP5		61	B07KP5	
B07KP8		43	B07KP8	
~~B07GP1~~		~~%R(81)~~	~~6/17/93~~	
GFAA Anal Spk %R for B07GP4	Lead	~~6/17/93~~ 85 67	B07GP4	J or UJ

PRECISION DATA SUMMARY - FORM B-5

SDG: W11CI39	REVIEWER C Jensen	DATE: 4/16/93	PAGE 1 OF 1

COMMENTS: Inorganics

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Sodium (Serial dilution)	(B07KF5) M 4/6/93	(B07KF5) M 4/6/93L	14.7	all	J or UJ
Thallium (6FAA)	B07GP1	—	RSD= 48.57	B07GP1	J or UJ

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Herbicide Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for organochlorine herbicide analysis. The samples were analyzed by the DataChem laboratory using EPA method 8150. The sample identification numbers, collection dates, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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 a surrogate recoveries for four samples as noted under "Minor Deficiencies".

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 five samples were validated in this data set with a total of 50 determinations reported. Out of the 50 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

Holding Times

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

Accuracy

The surrogate recovery exceeded the control limits of 50 - 150% for samples B07GP1 (162%), B07GP4 (166%), B07KP5 (168%) and B07KP8 (194%). Since the samples were previously qualified due to holding time exceedance, no further qualification of the samples was necessary.

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: WHC139	REVIEWER: CJ	DATE: 6/22/92	PAGE 1 OF 1
COMMENTS: Herbicides			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J or UJ	all	extraction holding time exceeded

ATTACHMENT 3

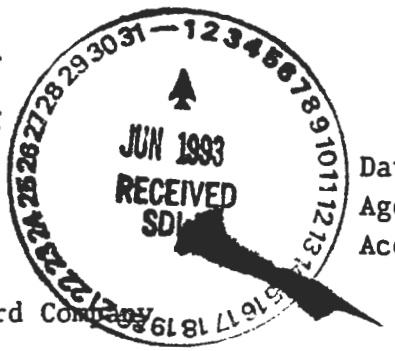
AS QUALIFIED DATA SUMMARY

9613424.1672

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 3
Part 1 of 2



Date DEC 2 2 1992

Agency Identification Number SF-1361-IK

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

Copy

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis December 14, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	2,4-D µg/g	2,4-DB µg/g	2,4,5-T µg/g	2,4,5-TP (Silvex) µg/g	Dalapon µg/g	Dicamba µg/g	Dichloroprop µg/g	Dinoseb µg/g	
QC-90974-1	QC-90974-1	SOIL	.15	ND*	.058	.078	ND*	ND*	ND*	ND*	
BL-90974-1	BL-90974-1	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP1 *	CLP 11610	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GP4 *	CLP 11611	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP4 *	CLP 11612	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP5 *	CLP 11613	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8 *	CLP 11614	SOIL	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07KP8MS	CLP 11614MS	SOIL	1.6	ND*	.63	.80	ND*	ND*	ND*	ND*	†
B07KP8MSD	CLP 11614MSD	SOIL	1.5	ND*	.58	.75	ND*	ND*	ND*	ND*	†
* Limit of Detection			.02	.1	.01	.01	.1	.01	.02	.02	

† See comment on last page.
** See comment on last page.
ND Parameter not detected.
( ) Parameter between LOD and LOQ.
NR Parameter not requested.

* Extraction holding time exceeded for samples. Results are value of detection limit and UJ qualified. qj 6/22/93

Analyst: John Meikle

Reviewer: Guangyue Liu

Laboratory Supervisor: Jose C. Danino

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date DEC 22 1992
Agency Identification Number SF-1361-IK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection October 30, 1992

Date Samples Received at Laboratory November 05, 1992

Analysis

Method of Analysis EPA 8150

Date(s) of Analysis December 14, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	MCPA µg/g	MCPP µg/g	DCAA µg/g						
QC-90974-1	QC-90974-1	SOIL	ND*	ND*	.027						
BL-90974-1	BL-90974-1	SOIL	ND*	ND*	.036						
B07GP1 ★	CLP 11610	SOIL	ND*	ND*	.081						
B07GP4 ★	CLP 11611	SOIL	ND*	ND*	.083						
B07KP4 ★	CLP 11612	SOIL	ND*	ND*	.036						
B07KP5 ★	CLP 11613	SOIL	ND*	ND*	.084						
B07KP8 ★	CLP 11614	SOIL	ND*	ND*	.097						
B07KP8MS	CLP 11614MS	SOIL	ND*	ND*	.94						†
B07KP8MSD	CLP 11614MSD	SOIL	ND*	ND*	.88						†
* Limit of Detection			5	5	SURR						

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

* Extraction holding time exceeded for samples. Results are detection limit value and UJ qualifier. 5/12/2/93

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

HERBICIDE DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/22/93
LABORATORY: Data Chem	CASE:	SDG: WHC134
SAMPLES/MATRIX: Soils B07GP1, B07GP4, B07KP4, B07KP5 B07KP9		

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 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		✓	✓ cj 6/24/93	
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		✓	—	—

2. HOLDING TIMES

	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) see comment

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? Yes No (N/A) See comment

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) See comment 1 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

see comment 5

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 6

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 spike recoveries were 58-160. which exceeds the recovery of 23-139%. No qualification is made based on the MS/MSD recoveries. The LCS recoveries are 58-156, no qualification of results were made.

2. The RSDs were not calculated for the calibration. There are no forms, the analysis is SW846. The r^2 were all >0.995.

3. Surrogates were added to the samples at .05ug/g DCAA which calculates as follows:

Sample	% recovery
Blank	72
B07GP1	162
B07GP4	166
B07GR4	72
B07KP5	168
B07KP8	194

Limits are 50-150, however, samples were previously qualified as UJ for the holding time exceedance. No further qualification of results is necessary.

4. An LCS was analyzed with the sample batch. Recoveries were 58-150%. No qualification was made based on these recoveries.

5. Laboratory did not provide enough information to recalculate the MS/MSD recoveries. Recoveries reported were 58-160%. Samples are not qualified based on the recoveries.

6. There were no target compounds identified.

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC139	REVIEWER: C Jensen	DATE: 6/22/93	PAGE 1 OF 1
COMMENTS: Herbicides			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07GP1	Herb	10/30/92	11/10/92	12/15/92	11	35	J or UJ
B07GP4	↓	11/2/92	↓	↓	8	↓	↓
B07KP4	↓	↓	↓	↓	↓	↓	↓
B07KP5	↓	↓	↓	↓	↓	↓	↓
B07KP8	↓	↓	↓	↓	↓	↓	↓

MEMORANDUM

TO: North Slope ERA Project QA Record June 28, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: General Chemistry Analysis Data Validation Summary for B07GP1-DAT-206

INTRODUCTION

This memo presents the results of data validation on data package B07GP1-DAT-206 consisting of five soil samples submitted for anions, hexavalent chromium, and nitrate+nitrite as N. The samples were analyzed by the DataChem laboratory using routine laboratory protocols. The sample identification numbers, collection dates, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07GP1	10/30/92	SOIL
B07GP4	11/02/92	SOIL
B07KP4	11/02/92	SOIL
B07KP5	11/02/92	SOIL
B07KP8	11/02/92	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.

Sample Result Verification. All sample results were supported in the raw data with the exception of the nitrates result for sample B07KP8 which was reported at 8 ug/g instead of 10 ug/g. The sample result was corrected on the report form.

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

Completeness. The data package was complete for all requested analyses. A total of five (5) samples were validated in this data set with a total of 30 determinations reported. Out of the 30 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

There were no minor deficiencies identified during validation that resulted in qualification of the samples.

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.

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.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG:	REVIEWER:	DATE:	PAGE___OF___
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613424.1689

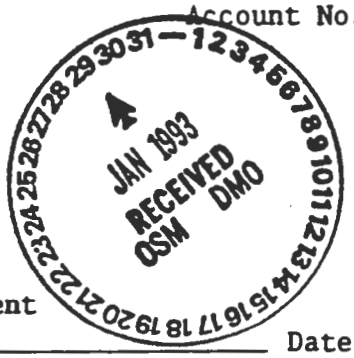
DATA CHEM LABORATORIES

ENVIRONMENTAL SOIL REPORT

Form EPRS-A
Page 1 of 2
Part 1 of 1

Date _____
Agency Identification Number SF-1361-EK
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan



Telephone (509) 373-3225

Sampling Collection and Shipment
Sampling Site _____ Date of Collection October 30, 1992
Date Samples Received at Laboratory November 05, 1992

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	B07GP1 CLP 11610	B07GP4 CLP 11611	B07KP4 CLP 11612	B07KP5 CLP 11613	B07KP8 CLP 11614			* Limit of Detection
Fluoride (F) 11/17/1992 300.0 [1]	µg/g	3.	ND*	2.	1.	4.			1.
Chloride (Cl) 11/17/1992 300.0 [1]	µg/g	15.	2.	7.	7.	52.			1.
Sulfate (SO_4) 11/17/1992 300.0 [1]	µg/g	1300	1.	830	550	150			1.
Phosphate (PO_4-P) 11/17/1992 300.0 [1]	µg/g	ND*	ND*	ND*	ND*	ND*			1.
Nitrates (NO_3-N + NO_2-N) 11/27/1992 353.2 [1]	µg/g	25.	ND*	2.	2.	10			1.
Chromium VI 11/12/1992 7196 [2] 3060M [2]	µg/g	ND*	ND*	ND*	ND*	ND*			1.

342-0871-BB

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
i Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: Jennifer K. Richerson

Reviewer: Katherine Kellersberger 1/6/22/93

Laboratory Supervisor: Michael P. Beesley

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: North Slope ERA	REVIEWER: GJ	DATE: 6/22/93
LABORATORY: Data Chem	CASE:	SDG:
SAMPLES/MATRIX: Soils: B076P1, B076P4, B07KP4, B07KP5 B07KP6		

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	✓	—	—

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?	(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)

See comment 1

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

See comment 2

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~~

~~See comment~~ 3
4/6/22/93

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

see comment 3

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? (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

See comment 4

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):

1. There were ICVs run but no CCVs to verify the % recovery.

2. Target analytes were present in the blanks at very low concentrations that do not affect sample results.

3. MS recoveries could not be recalculated because the raw data was not available to verify spiking amounts. no Qualification of the data is based on this deficiency. Duplicate 6/28/93

3. A check standard was analyzed instead of an LCS for anions.

The LCS for nitrates was within limits.

4. Nitrates result for sample B07KP8 was 10 ug/g instead of 8 ug/g.

HOLDING TIME SUMMARY - FORM B-1

SDG: WHC139	REVIEWER: C Jensen	DATE: 6/22/93	PAGE 1 OF ___
COMMENTS: Wet chem			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07GP1	Anions	10/30/92	—	11/22, 11/23 & 11/25/92	<28 (6/22/93)	<28	none
	Chrom VI	10/30/92	11/2/92	11/2/92	10	10	none
	Nitrates	10/30/92	11/27/92	11/27/92	25	0	none
KP4, KP5, KP8 B07G4,	Anions	11/2/92	—	11/22, 11/23 & 11/25/92	<28 (6/22/93)	<28	none
↓	Chrom VI	11/2/92	11/2/92	11/2/92	10	10	none
	Nitrates	11/2/92	11/27/92	11/27/92	25		none